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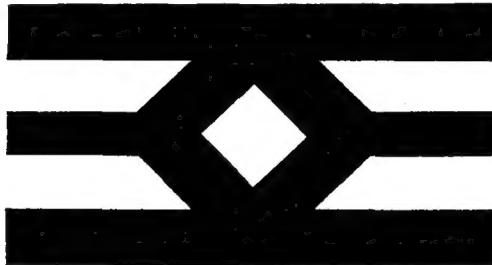
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First published 1914

Fourteenth edition 1975

Fifth impression 1981

ISBN 0 11 880462 6

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Foreword

This handbook is intended only for the guidance of radio operators in ship and coast stations operating radio equipment on frequencies in the international maritime mobile bands and is subject to the overriding authority given in the International and National Regulations detailed below. It is made up of the following eight chapters:

- Chapter I General Regulations and Conditions to be Observed by Stations of the Maritime Mobile Service.**
- Chapter II Radiotelegrams, Radiotelephone and Radiotelex Calls.**
- Chapter III Selective Calling.**
- Chapter IV Procedures in the Maritime Mobile Radiotelegraph Service.**
- Chapter V Distress, Urgency and Safety Communications by Radiotelegraphy.**
- Chapter VI Procedures in the Maritime Mobile Radiotelephone Service.**
- Chapter VII Distress, Urgency and Safety Communications by Radiotelephony.**
- Chapter VIII Special Services.**

The handbook is based on the provisions of:

- (a) the International Telecommunication Convention (Malaga-Torremolinos, 1973);
- (b) the Radio Regulations and Additional Radio Regulations, Geneva, 1967, as revised by the World Administrative Radio Conference to deal with matters relating to the maritime mobile service, Geneva, 1974;
- (c) the Merchant Shipping (Radio) Rules, 1965;
- (d) the Merchant Shipping (Direction-Finders) Rules, 1965;
- (e) the Merchant Shipping (Radio) (Fishing Vessels) Rules, 1974;
- (f) the Wireless Telegraphy Acts, 1949 to 1967;
- (g) the Telegraph Regulations and Telephone Regulations (Geneva 1973);
- (h) on certain other statutory provisions.

Strict observance of the provisions and procedures covered by this handbook is essential for the efficient exchange of communications in the maritime mobile service, particularly when the safety of life is concerned. Special attention should be given to those sections dealing with distress, urgency and safety.

Throughout this handbook any reference to the United Kingdom also includes the Isle of Man and the Channel Islands.

TABLE OF CONTENTS

Chapter I.—General Regulations and Conditions to be Observed by Stations of the Maritime Mobile Service

SECTION	PAGE
Part 1—General Provisions	
1 Licence	1
2 Authority of the Master	1
3 Inspection of Stations	1
4 Secrecy	2
5 Distress Calls and Messages	2
6 False or Deceptive Distress, Safety or Identification Signals	3
7 Hours of Watchkeeping of Stations in the Maritime Mobile Services	3
8 Designation of Frequencies	5
9 Classification of Emissions	6
10 Apparatus—General Technical Requirements	6
11 Operation of Broadcasting Service	7
11a Operation of Amateur (maritime) stations	7
12 Avoidance of Interference	8
13 Superfluous and Unnecessary Signalling Forbidden	8
14 Test Signals	8
15 Use of Radio Apparatus on Merchant Ships in Harbours of the United Kingdom	8
16 Radiocommunications between British Merchant Ships and H.M. Ships	9
17 Infringements of the Radio Regulations	9
18 Silence Periods	10
19 Time Signals	10
20 Order of Priority of Communications in the Mobile Service	10
21 Wrecks and Casualties	11
22 Documents to be Carried by Ship Stations	11
23 Service Documents	11
24 Call Signs and Signals of Identification	12
 Part 2—Operators' Certificates and Service Qualifications	
25 Operators' Certificates	14
26 Lost Certificates	16
27 Operators' Service Qualifications	16

SECTION**PAGE****Part 3—Ships' Radio Logs**

28	Logs of Ships Equipped with Radiocommunication Apparatus Required by the Merchant Shipping (Radio) Rules 1965, and the Merchant Shipping (Radio) (Fishing Vessels) Rules 1974 ..	22
29	Logs of Other Ships Equipped with Radiocommunication Apparatus	27
30	Battery Maintenance, Particulars to be entered in Log	28

Chapter II.—Radiotelegrams, Radiotelephone and Radiotelex Calls**Part 1—Preparation and Handing-in of Radiotelegrams**

31	Acceptance of Radiotelegrams	29
32	Classes of Radiotelegram not Admitted	30
33	Senders' Instructions	30
34	Prefixes	31
35	Routing of Radiotelegrams	31
36	Plain Language	31
37	Secret Language	32
38	Address	32

Part 2—Counting of Words in Radiotelegrams

39	Counting of Chargeable Words	34
40	Words, Groups and Expressions Counted as one Word Regardless of the number of Characters ..	34
41	Words, Groups and Expressions Counted at the Rate of One Word for each Fifteen Letters ..	35
42	Words, Groups and Expressions Counted at the Rate of One Word for each Five Characters ..	36
43	Indication in the Preamble of the Number of Words ..	37
44	Examples of Counting	38

Part 3—Special Radiotelegrams

45	Service Indications	40
46	Urgent Radiotelegrams	42
47	Radiomaritime Letters (Ship Letter Telegrams) ..	42
48	Press Radiotelegrams	43
49	Prepaid Replies	45
50	Radiotelegrams to be Collated	45
51	Radiotelegrams to be Delivered to the Addressee in Person	46
52	Radiotelegrams to be Delivered by Special Means ..	46
53	Radiotelegrams to be Called for	48

SECTION	PAGE
54 Radiotelegrams to be Held at a Coast Station for a Fixed Number of Days	48
55 De-Luxe (Greetings) Radiotelegrams	49
56/57 Ocean Letters and Poste Radios	50
58 Retransmission of Radiotelegrams	51
59 Correction of, or Enquiry Concerning, Radiotelegrams	52
60 Cancellation of Radiotelegrams	53
61 Undelivered Radiotelegrams	54
62 Service Advices	55
63 Specimen Service Advices	55
64 French Equivalents of Common Expressions	57
Part 4—Charges, Reimbursements and Accounting for Radiotelegrams	
65 Components of Charges	58
66 Coast and Ship Station Charges	58
67 Charges for Press Radiotelegrams	59
68 Charges for Ordinary Telegraph Transmission	59
69 Receipts	60
70 Accounts	60
71 Conditions under which Reimbursement may be Claimed	60
72 Applications for Reimbursements to be made in Writing	62
73 Reimbursement for Consequential and Correcting Telegrams	63
Part 5—Radiotelephone Calls	
74 General	64
75 Priority of Radiotelephone Calls	64
76 Booking of Calls	64
77 Period of Validity of Bookings	65
78 Cancellation of Calls	65
Part 6—Charges for Radiotelephone Calls	
79 General	67
80 Telephone Credit Cards	68
Part 7—Radiotelex Calls	69
Chapter III.—Selective Calling in the Maritime Mobile Service	
81 General	70
82 Method of Calling	70
83 Repetition of Call	70
84 Reply to Calls	70
85 Frequencies to be used	71

Chapter IV.—Procedures in the Maritime Mobile Radio Telegraph Service

Part 1—Use of Frequencies

86-88	General	.. .. .. .. ..	.. .. .. .. ..	72
89	Bands between 405 and 535 kc/s	.. .. .. .. ..	.. .. .. .. ..	72
90	Bands between 1605 and 1625 kc/s	.. .. .. .. ..	.. .. .. .. ..	75
91	Bands between 4000 and 27500 kc/s	.. .. .. .. ..	.. .. .. .. ..	75

Part 2—General Procedure

92	General	.. .. .. .. ..	.. .. .. .. ..	79
93	Control of Working	.. .. .. .. ..	.. .. .. .. ..	79
94	Calling Procedure	.. .. .. .. ..	.. .. .. .. ..	80
95	Repetition of Calls	.. .. .. .. ..	.. .. .. .. ..	80
96	General Call to "All Stations"	.. .. .. .. ..	.. .. .. .. ..	81
97	Procedure for Replying to Calls	.. .. .. .. ..	.. .. .. .. ..	81
98	Example of Call, Reply and Transfer to Working Frequencies	.. .. .. .. ..	.. .. .. .. ..	83
99	Coast Station Traffic Lists	.. .. .. .. ..	.. .. .. .. ..	83
100	Signal for End of Work	.. .. .. .. ..	.. .. .. .. ..	84
101	Failure to Establish Communication with a United Kingdom Coast Station	.. .. .. .. ..	.. .. .. .. ..	84
102	Information to be Furnished by a Ship Station (TR)	.. .. .. .. ..	.. .. .. .. ..	85
103	Closure of Service on Ship Stations	.. .. .. .. ..	.. .. .. .. ..	86
104	Transmission of Test Signals	.. .. .. .. ..	.. .. .. .. ..	87

Part 3—Transmission of Radiotelegrams

105	Transmission of Radiotelegrams to Coast Stations	.. .. .. .. ..	.. .. .. .. ..	88
106	Priority and Order of Work	.. .. .. .. ..	.. .. .. .. ..	88
107	Numbering in Daily Series	.. .. .. .. ..	.. .. .. .. ..	89
108	Preparatory Signals	.. .. .. .. ..	.. .. .. .. ..	89
109	Operating Signals and Preamble	.. .. .. .. ..	.. .. .. .. ..	89
110	Form of Transmission of a Radiotelegram	.. .. .. .. ..	.. .. .. .. ..	90
111	Long Radiotelegrams	.. .. .. .. ..	.. .. .. .. ..	91
112	Acknowledgment of Receipt	.. .. .. .. ..	.. .. .. .. ..	91
113	Procedure when Communication becomes Difficult	.. .. .. .. ..	.. .. .. .. ..	92
114	Identification of Ships Bearing the Same Name	.. .. .. .. ..	.. .. .. .. ..	93
115	Preamble for Inland Transmission from Coast Stations	.. .. .. .. ..	.. .. .. .. ..	93
116	Accounting Particulars to be Supplied to Coast Stations	.. .. .. .. ..	.. .. .. .. ..	94
117	Long Distance Ship Shore Radiocommunication	.. .. .. .. ..	.. .. .. .. ..	94

Chapter V.—Distress, Urgency and Safety Communications by Radiotelegraphy

							PAGE
118	General	..	..	..	..	..	95
119	Distress Frequency	..	..	..	..	..	95
120	Alarm Signals	..	..	..	..	..	96
121	Distress Signal	..	..	..	..	..	97
122	Distress Call	..	..	..	..	..	97
123	Distress Message	..	..	..	..	..	97
124	Distress Traffic	..	..	..	..	..	98
125	Distress Call and Message Transmission Procedure	..	..	..	..	..	98
126	Acknowledgment of Receipt of a Distress Message	..	..	..	..	..	99
127	Obligation to Acknowledge Receipt of a Distress Message	..	..	..	..	..	99
128	Control of Distress Traffic	..	..	..	..	..	100
129	Transmission of a Distress Message by a Station not Itself in Distress	..	..	..	..	..	102
130	Misuse of Distress Signal	..	..	..	..	..	103
131	Emergency Position indicating Radio beacon Signals	..	..	..	..	..	103
132	Urgency Signal	..	..	..	..	..	103
133	Safety Signal	..	..	..	..	..	104

Chapter VI.—Procedures in the Maritime Mobile Radiotelephone Service

Part 1—General Provisions

134	Licence	..	..	..	..	..	106
135	Secrecy	..	..	..	..	..	106
136	Identification of Stations	..	..	..	..	..	106
137	Operators' Certificates of Competency	..	..	..	..	..	107
138	Documents to be Carried	..	..	..	..	..	107
139	Control of Communications	..	..	..	..	..	107
140	Unauthorised Transmissions and Broadcast Transmissions	..	..	..	..	..	107

Part 2—Use of Frequencies

141-142	General	..	..	..	..	..	109
143	Bands between 1605 and 4000 kc/s	..	..	..	..	..	109
144	Bands between 4000 and 23000 kc/s	..	..	..	..	..	115
145	Bands between 156 and 174 Mc/s	..	..	..	..	..	116

SECTION	PAGE
Part 3—General Procedure	
146-147 General	119
148 Control of Working	119
149 Calling Procedure	119
150 Procedure for Replying to Calls	121
151 Agreement on the Frequency Channel to be Used for Working	122
152 Example of Call, Reply and Transfer to Working Frequency Channel	122
153 Coast Station Traffic Lists	123
154 Signal for End of Work	124
155 Failure to Establish Communication with a United Kingdom Coast Station	124
156 Information to be Furnished by Ship Station (TR)	124
157 Closure of Service on Ship Stations	125
158 Arrival in, and Departure from, Port	125
159 Transmission of Test Signals	125
160 Port Operations and Ship Movement Services	126
161 "On-Board" Communications	126
Part 4—Transmission of Radiotelegrams	
162 General	128
163 Form of Transmission of a Radiotelegram	128
164 Acknowledgment of Receipt	130
165 Examples of Transmission of a Radiotelegram	130
166 Procedure when Communication becomes Difficult	131
167 Preamble for Inland Transmission from Coast Stations	132
Part 5—Establishment of Radiotelephone Calls	
168 General	133
169 Setting up a Radiotelephone Call	133

Chapter VII.—Distress, Urgency and Safety Communications by Radiotelephony

170 General	135
171 Distress Frequency	135
172 Alarm Signals	136
173 Distress Signal	138
174 Distress Call	138
175 Distress Message	138
176 Distress Call and Message Transmission Procedure	139

SECTION	PAGE
177 Example of Distress Procedure	139
178 Acknowledgment of Receipt of a Distress Message	140
179 Obligation to Acknowledge Receipt of Distress Message	140
180 Distress Traffic	141
181 Control of Distress Traffic	142
182 Transmission of a Distress Message by a Station not Itself in Distress	143
183 Misuse of Distress Signal	144
184 Emergency Position—indicating Radio beacon Signals	144
185 Urgency Signal	145
186 Example of Urgency Call and Message	146
187 Safety Signal	146

Chapter VIII.—Special Services

188 Radiodetermination Services	148
189 Radio Direction-Finding	148
190 Radiobeacon Stations	149
191 Meteorological Information	149
192 Navigational Information	150
193 Medical Advice and Medical Assistance	151

Appendices

Appendix 1—International Morse Code Signals	152
Appendix 2—Abbreviations and Signals to be Used in Radiocommunications	155
Part I Q Code	155
Part II Miscellaneous Abbreviations and Signals	175
Part III Phonetic Alphabet and Figure Code	178
Appendix 3—Hours of Service for Ships in the Second and Third Categories	180
Appendix 4—Examinations for the Certificates of Competence in Radiocommunication, Radiotelegraphy and Radiotelephony Issued by the Home Office	184
Appendix 5—Form of Radiocommunication Log-Book	229
Appendix 6—Specimen of Ship Station Licence	232
Appendix 7—Documents to be Carried by Ship Stations	239
Appendix 8—Radio Direction-Finding Procedures	241

CHAPTER I

General Regulations and Conditions to be Observed by Stations of the Maritime Mobile Service

PART I—GENERAL PROVISIONS

Licence

1. Under the Wireless Telegraphy Acts 1949 to 1967, a licence issued by the Home Office is necessary before any radio apparatus is installed or used on board a ship.

The licence shows the name and call sign of the ship; the public correspondence category; the frequencies, type of emission and power which may be used for transmission; it also specifies the conditions under which the station must be operated (see Appendix 6). It is the duty of operators to observe these conditions to the best of their ability.

Subject to the approval of the master, or other person responsible for the ship, the licence permits all members of the crew and passengers on board a ship to install and use radio apparatus for the reception of programmes by sound sent from authorised broadcasting stations for general reception. A separate licence is required for the reception of television programmes.

Subject to payment in advance of the prescribed annual renewal fee, a ship licence normally continues in force from year to year, but the Home Office has power to revoke a licence or to vary its terms at any time.

The licence must be kept in such a way that it can be produced upon request for inspection by the competent authorities at ports at which the ship calls. As far as possible it should be permanently exhibited in the station.

Authority of the Master

2. The radio service of a ship is placed under the supreme authority of the master or of the person responsible for the ship.

Inspection of Stations

3. All stations are subject to inspection by officers appointed for that purpose by the Home Office in order to ascertain that the

conditions imposed by the licence are being complied with. Ship stations which are required by the Merchant Shipping Acts and the Merchant Shipping Rules made thereunder to be equipped with radiocommunication apparatus are surveyed annually to ensure that the relative requirements are being complied with. If appropriate, inspection and survey are carried out at the same time, normally by a Radio Surveyor. It is the duty of operators to afford these officers every facility for such inspection.

The competent authorities of any country where a ship calls can require the production of the licence, and, failing its production, or when manifest irregularities are observed, can inspect the apparatus in order to satisfy themselves that it conforms to the requirements of the International Radio Regulations; they can also require the production of the operators' certificates. The authorised inspectors must have in their possession an identity card or badge which they must show at the request of the master or person responsible for the ship. Except in the case of United Kingdom ships in United Kingdom ports, any breach of the regulations observed must be reported in writing by the inspector to the master or other person responsible before leaving the ship.

Secrecy

4. Radio operators and all persons who become acquainted with the contents of radiotelegrams or radiotelephone calls are bound to preserve the secrecy of correspondence. No person shall divulge the contents or even the existence of correspondence transmitted received, or intercepted by a radio station.

The interception of radiocommunication correspondence, other than that which the station is authorised to receive, is forbidden and in the case where such correspondence is involuntarily received, it shall not be reproduced, nor communicated to third parties, nor used for any purpose, and even its existence shall not be disclosed.

A copy of Section 11 of the Post Office (Protection) Act, 1884 shall be exhibited in the radio room.

Distress Calls and Messages

5. The obligation to accept distress calls and messages is absolute in the case of every station without distinction, and such messages must be accepted with priority over all other messages; they must be answered and the necessary steps must immediately be taken to give effect to them.

False or Deceptive Distress, Safety or Identification Signals

6. The transmission or circulation of false or deceptive distress, safety or identification signals is strictly prohibited.

**Hours of Watchkeeping of Stations in the
Maritime Mobile Services**

7. (1) In order to permit the application of the following rules on the subject of hours of watch, every station of the maritime service must have an accurate clock correctly regulated to Greenwich Mean Time (G.M.T.).

Greenwich Mean Time (reckoned from 0001 to 2400 hours beginning at midnight) must be used for all entries in the radio-communication service log and in all similar documents of ships prescribed to be equipped with radiocommunication apparatus in compliance with an international agreement; this same provision will apply, as far as possible, to other ships.

COAST STATIONS

(2) The service of coast stations is, as far as possible, continuous (day and night) but certain coast stations may provide a service of limited duration.

The hours of service of coast stations are indicated in the List of Coast Stations, published by the International Telecommunication Union.

Coast stations whose service is not continuous must not close before:

- (a) finishing all operations resulting from a distress call, urgency or safety signal;
- (b) exchanging all traffic originating in or destined for mobile stations which are situated within their service area and have indicated their presence before the actual cessation of work.
- (c) making a general call to all stations announcing the closing down of the service and advising the time of reopening, if other than their normal hours of service.

SHIP STATIONS

(3) For the international public correspondence service, ship stations are divided into four categories:

- (a) Stations of the first category: these stations maintain a continuous watch;

- (b) Stations of the second category: these stations maintain a service for 16 hours a day;
- (c) Stations of the third category: these stations maintain a service for 8 hours a day;
- (d) Stations of the fourth category: these stations maintain a service the duration of which is either shorter than that of stations of the third category, or is not fixed.

Stations of the second and third categories provide service at least during the hours fixed by Appendix 3 except that in the case of short voyages the hours of watch are fixed by the administration to which they are subject.

Stations of the fourth category are encouraged to provide service from 0830 to 0930 hours, Ships' time.

The hours of service of ships engaged on international voyages are shown where practicable in the List of Ship Stations.

(4) For the purpose of distress watchkeeping under the Merchant Shipping (Radio) Rules, ships equipped with radiotelegraphy in compliance with the requirements of the Rules are divided into four classes as shown in Section 27 (3) and are normally required to maintain the following watches:

- (a) Stations installed in Class I ships: if not provided with a radiotelegraph auto-alarm these stations maintain a continuous listening watch and if provided with a radiotelegraph auto-alarm they maintain a listening watch of sixteen hours per day at the times shown in Appendix 3, Part 1.
- (b) Stations installed in Class II, Class III and Class IV ships: if not provided with a radiotelegraph auto-alarm these stations maintain a continuous listening watch and if provided with a radiotelegraph auto-alarm they maintain a listening watch of eight hours per day at the times shown in Appendix 3, Part 1.

Ships which are equipped with radiotelephony in compliance with the requirements of the Merchant Shipping (Radio) Rules are required to maintain a continuous listening watch. Such watch shall be kept by a radiotelephone operator or by means of loud-speaker reception by the master or by an officer or member of the crew appointed to that duty by the master.

Radio watch may be discontinued:

- (i) when the receiver forming part of the radiotelephone installation is being used for traffic on a frequency other than 2182 kHz and a second receiver is not available; or

- (ii) when, in the opinion of the master, conditions are such that maintenance of radio watch would interfere with safe navigation of his ship or fishing boat.

Notwithstanding the provisions of sub para (ii) of the preceding paragraph, radio watch shall, as far as practicable, be maintained during the silence periods.

(5) For the purpose of distress watchkeeping under the Merchant Shipping (Radio) (Fishing Vessels) Rules, ships equipped with radio in compliance with the requirements of the Rules are divided into three classes as shown in Section 27 (3) and are normally required to maintain the following watches:

- (a) Stations installed in all three Classes of fishing vessels: these stations maintain a continuous listening watch on 2182 kHz at the place on board from which the fishing vessel is normally navigated. Such watch may be kept by means of a loudspeaker watchkeeping receiver provided with a selective response.
- (b) Stations installed in Class I fishing vessels: in addition to the watch described in (a), these stations maintain continuous watch on 500 kHz whilst operating outside the area specified in Schedule 2 of the Merchant Shipping (Radio) (Fishing Vessels) Rules. Such watch may be kept by means of radiotelegraph auto-alarm equipment.

(6) Ship stations whose service is not continuous shall not close before:

- (a) finishing all operations resulting from a distress call urgency or safety signal;
- (b) exchanging so far as practicable all traffic originating in or destined for coast stations situated within their service area and for mobile stations which being within their service area have indicated their presence before the actual cessation of work.

Any ship station not having fixed hours of watch must inform the coast station with which it is in communication of the time of closing and the time of re-opening its service.

Designation of Frequencies

- 8. Frequencies are expressed in kilohertz (kHz) up to and including 3000 kHz; in megahertz (MHz) thereafter up to and including 3000 MHz; in gigahertz (GHz) thereafter up to and including 3000 GHz.**

Classification of Emissions

9. Emissions are classified and symbolised as follows:

AMPLITUDE MODULATION					SYMBOL
With no modulation	..	..	..	..	A0
Telex without the use of a modulating audio frequency (by on-off keying)	..	..	..	..	A1
Telex by the on-off keying of an amplitude-modulating audio frequency or audio frequencies or by the on-off keying of the modulated emission (special case: an unkeyed emission amplitude modulated:					
Double sideband	..	..	..	..	A2
Single sideband full carrier	..	..	..	..	A2H
Telex: Double sideband	..	..	..	..	A3
Single sideband full carrier	..	..	..	..	A3H
Single sideband reduced carrier	..	..	..	..	A3A
Single sideband suppressed carrier	..	..	..	..	A3J
Two independent sidebands	..	..	..	..	A3B
Facsimile (with modulation of main carrier either directly or by a frequency modulated sub-carrier)	..	..	..	..	A4A
Multichannel voice-frequency telex (single sideband reduced carrier)	..	..	..	..	A7A
Cases not covered by the above	..	..	..	..	A9
FREQUENCY (OR PHASE) MODULATION					
Telex by frequency shift keying without the use of a modulating audio frequency one of the two frequencies being emitted at any instant	..	..	..	..	F1
Telex by the on-off keying of a frequency-modulating audio frequency or by the on-off keying of a frequency modulated emission (special case: an unkeyed emission frequency modulated)	..	..	..	..	F2
Telex	..	..	..	..	F3
Facsimile by direct frequency carrier modulation	..	..	..	..	F4
PULSE MODULATION					
A pulsed carrier without any modulation intended to carry information (e.g. radar)	..	..	..	..	PO

Apparatus—General Technical Requirements

10. The energy radiated by receiving apparatus must be reduced to the lowest possible value and must not cause harmful interference to other stations.

All practical steps must be taken to ensure that the operation of any electrical or electronic apparatus does not cause harmful interference to essential radio services.

Dangerous parts of the apparatus must either be screened or effectively isolated.

Changes of frequency in the sending and receiving apparatus of any ship station must be capable of being made as rapidly as possible.

Installations of any ship station must be capable, once communication is established, of changing from transmission to reception and vice versa in as short a time as possible.

Operation of Broadcasting Service

11. The operation of a broadcasting service by mobile stations at sea and over the sea is prohibited.

Operation of Amateur (Maritime) Stations

11a. The establishment and use of Amateur sending and receiving stations for wireless telegraphy on United Kingdom Ships is permitted. Licences granted by the Home Office to persons who wish to establish and use such stations contain the terms, provisions and limitations with which the Licensee must comply. Among these are provisions to the effect that:

- (a) Except where the Licensee owns the ship, the Licensee shall not use the station unless he has in his possession at the time a copy of the written permission so to do from the current owners of the ship, the Master of the Ship, the company responsible for the Maintenance of the Ship's wireless telegraphy apparatus and, if the Licensee is the Radio Officer of the Ship, his employer.
- (b) The apparatus comprised in the Amateur Station shall be so designed, constructed, maintained and used that its use or presence on the Ship does not cause interference with any wireless telegraphy; and in particular and without prejudice to the generality of this clause, with wireless telegraphy on the ship.
- (c) The station shall not be used until it has been inspected and approved for use by a duly authorised officer of the Post Office.
- (d) The Amateur Station shall be closed down at any time on the demand of an officer of the Post Office, the Master or Radio Officer, of the Ship, or any coast radio station.

Note:—If the station is closed down at the request of the

Radio Officer (viz., where interference is being caused to the Ship's wireless telegraphy service), such closure should be confirmed by the Master.

Avoidance of Interference

12. A general obligation which is imposed on all stations alike, and which is regarded as of the highest importance, is that they shall interfere as little as possible with the working of other stations. The rules of working are largely designed to prevent such interference.

All stations shall radiate only as much power as is necessary to ensure a satisfactory service.

Superfluous and Unnecessary Signalling Forbidden

13. All stations are forbidden to carry out unnecessary transmissions and the transmission of superfluous signals.

The unauthorised use of radio apparatus for the transmission or reception of correspondence of a private nature is strictly prohibited.

Test Signals

14. Tests and experiments are only permitted in ship stations in so far as they do not interfere with the service of other stations.

Any ship station making test signals must transmit its call sign or other identification at frequent intervals.

Signals used for testing and adjustment must be chosen in such a manner that there will be no confusion with a signal, abbreviation, etc., having a special meaning defined in the Radio Regulations or in the International Code of Signals.

In view of the risk of interference with the reception of broadcast programmes, tests of ships' radio installations in docks and harbours of the United Kingdom must be kept to a minimum, the call sign or other identification of the ship being transmitted at frequent intervals whenever tests are being made.

Use of Radio Apparatus on Merchant Ships in Harbours of the United Kingdom

15. The use of radio apparatus licensed by the Home Office and installed on board ships is permitted in the harbours and estuaries of the United Kingdom, subject to the conditions imposed by the licence, and for the following purposes only:

(a) for the exchange of communications through coast stations.

- (b) for radiodetermination and for the reception of messages sent from authorised broadcasting stations for general reception;
- (c) for the exchange of communications in a Port Operations Service, or in a private mobile service licensed by the Home Office for a specific purpose.

Radiocommunications between British Merchant Ships and H.M. Ships

16. As a general rule, radiotelegrams to H.M. Ships from British merchant ships are sent to a coast station for onward transmission over the Ministry of Defence communication network.

When necessary, however, H.M. Ships at sea may be called direct on 500 kHz using the collective call sign "GBXZ", on 2182 kHz or 156.8 MHz using the call "Any British Warship". A British warship replying on 500 kHz will use its international call sign; when answering on 2182 kHz or 156.8 MHz its own name will be used. Calls to warships other than those mentioned in (b) below should be made immediately following the international silence periods.

When at sea watch is maintained primarily for distress purposes, as follows:

- (a) Destroyers, frigates and other ocean-going warships suitably equipped keep watch on 500 kHz at the international silence periods (i.e. 15-18 and 45-48 minutes past each hour). Three or more such ships in company maintain watch as in (b).
- (b) Continuous watch on 500 kHz is maintained by flagships, aircraft carriers and cruisers when they are beyond 200 miles of the coast of the United Kingdom; within this limit watch may be reduced to that shown in (a).
- (c) H.M. Ships carrying less than three radio operators keep watch according to circumstances either on 500 kHz or 2182 kHz at the appropriate international silence periods except when the ship is in visual contact with a naval shore signal station.
- (d) H.M. Ships, when fitted with the appropriate radio equipment, normally maintain listening watch on 156.8 MHz at sea.

Infringements of the Radio Regulations

17. It is the duty of radio operators to report to the Home Office through their employers any infringements of the Radio Regulations which they may detect.

Silence Periods

18. In order to increase the safety of life at sea and over the sea, all stations of the maritime mobile service normally keeping watch on frequencies in the authorised bands between 405 and 535 kHz must, during their hours of service, take the necessary measures to ensure watch on the international radiotelegraph distress frequency, 500 kHz for three minutes twice each hour beginning at x h. 15 and x h. 45 G.M.T.; those normally keeping watch on frequencies in the authorised bands between 1605 and 2850 kHz must, during their hours of service, and as far as possible, take steps to keep watch on the international radiotelephone distress frequency, 2182 kHz for three minutes twice each hour beginning at x h. 00 and x h. 30 G.M.T.

Time Signals

19. Time signals are sent out from certain stations, particulars of which are contained in the List of Radiodetermination and Special Service Stations, published by the International Telecommunication Union. The clock in the radio room should be checked against time signals at least once a day to ensure correct timing, especially during the silence periods mentioned in Section 18.

Order of Priority of Communication in the Maritime Mobile Service

20. The term "communication" as used in this section means radiotelegrams, radiotelephone calls and radiotelex calls. The order of priority for communications in the maritime mobile service shall be as follows:

1. Distress calls, distress messages, and distress traffic.
2. Communications preceded by the urgency signal.
3. Communications preceded by the safety signal.
4. Communications relating to radio direction-finding.
5. Communications relating to the navigation and safe movement of aircraft.
6. Communications relating to the navigation, movements, and needs of ships, and weather observation messages destined for an official meteorological service.
7. Government radiotelegrams relative to the application of the United Nations Charter (ETATPRIORITYNATIONS).
8. Government radiotelegrams with priority (ETATPRIORITY) and Government calls for which priority has been expressly requested.

9. Service communications relating to the working of the telecommunication service or to communications previously exchanged.
10. Government communications other than those shown in 7 and 8 above and all other communications.

Wrecks and Casualties

21. Ship stations are invited to furnish to United Kingdom coast stations (including Portishead Radio) information concerning wrecks and casualties at sea for the purpose of communication to marine agencies.

Messages containing information concerning the presence of dangerous ice, dangerous wrecks, or any other imminent danger to marine navigation, must be transmitted as soon as possible to other ship stations in the vicinity, and to the appropriate authorities at the first point on the coast with which contact can be established. These transmissions must be preceded by the safety signal.

Documents to be Carried by Ship Stations

22. Ship stations must be provided with the documents enumerated in the appropriate section of Appendix 7.

Service Documents

23. The following operational documents are published by the Secretary-General of the International Telecommunication Union:

DOCUMENT	
List of Coast Stations	Republished every two years with recapitulative supplements every six months.
List of Ship Stations	Republished every year with a quarterly supplement in addition to a half-yearly recapitulative supplement.
List of Radiodetermination and Special Service Stations (Radiobeacon Stations, etc.).	Republished at intervals, with recapitulative supplements every six months.
Alphabetical List of Call Signs of Stations used by the Maritime Mobile Service (Coast, Ship, Radiodetermination and Special Service Stations).	Republished every two years with recapitulative supplements every three months.

Call Signs and Signals of Identification

24. (1) Transmissions without identification are forbidden. Transmissions from all stations must contain an indication by which the station making the transmission can be identified. Such indications must take the form of international call signs or other internationally agreed forms of identification as detailed below.

(2)*

RADIOTELEGRAPHY

- (a) Coast stations
 - a call sign of three letters, or three letters followed by preferably one or two, but not more than three digits (other than 0 or 1 in cases where they immediately follow a letter); or
 - its selective call identification number (four digits).
- (b) Ship stations
 - a call sign of four letters; or
 - its selective call number or signal (five digits).
- (c) Ships' survival craft stations
 - the call sign of the parent ship followed by two digits (other than 0 or 1 in cases where they immediately follow a letter);
- (d) Aeronautical stations
 - a call sign of three letters, or three letters followed by preferably one or two, but not more than three digits (other than 0 or 1 in cases where they immediately follow a letter).
- (e) Aircraft stations
 - a call sign of five letters.
- (f) Aircraft survival craft stations
 - the complete call sign of the parent aircraft followed by a single digit other than 0 or 1.
- (g) Emergency position-indicating radiobeacon stations
 - the morse letter B and/or the call sign of the parent ship to which the beacon belongs.
- (h) Amateur and Experimental stations
 - a call sign of one or two letters and a single digit (other than 0 or 1 in the case of experimental stations), followed by a group of not more than three letters.

*In certain cases the first letter of the call sign may be replaced by a digit.

(3)*

RADIOTELEPHONY

(a) Coast stations

- the geographical name of the place as it appears in the List of Coast Stations, followed preferably by the word RADIO or by any appropriate indication; or
- the call sign of three letters, or three letters followed by preferably one or two but not more than three digits (other than 0 or 1 in cases where they immediately follow a letter); or
- its selective call identification number (four digits).

(b) Ship stations

- the official name of the ship preceded, if necessary, by the name of the owner on condition that there is no possible confusion with distress, urgency and safety signals; or
- the call sign of four letters;
- two or three letters followed by four digits (other than 0 or 1 in cases where they immediately follow a letter); or
- its selective call number or signal (five digits).

(c) Ships' survival craft stations

- the name of the parent ship followed by two digits, or
- the call sign of the parent ship followed by two digits (other than 0 or 1 in cases where they immediately follow a letter).

(d) Aeronautical stations

- the name of the airport or geographical name of the place, followed if necessary, by a suitable word indicating the function of the station.

(e) Aircraft stations

- a word designating the airline, followed by the flight identification number, or
- a combination of characters corresponding to the official registration mark assigned to the aircraft, or
- a call sign of five letters, which may be preceded by a word designating the owner or the type of aircraft.

(f) Aircraft survival craft stations

- the complete call sign of the parent aircraft followed by a single digit other than 0 or 1.

(g) Emergency position-indicating radiobeacon stations

- the name and/or the call sign of the parent ship to which the radiobeacon belongs.

*In certain cases the first letter of the call sign may be replaced by a digit.

PART 2—OPERATORS' CERTIFICATES AND SERVICE QUALIFICATIONS

Operators' Certificates

25. (1) The ship station of a United Kingdom ship may be operated only by persons holding an appropriate **Certificate of Competence** issued or recognised by the Secretary of State for the Home Department, Home Office, and possessing his written Authority to Operate the particular type of ship station. However, in the case of a ship radiotelephone station, provided that the radiotelephone equipment is under the control of such a person, other persons may use the radiotelephone service.

(2) **Certificates of Competence** are issued by the Home Office to applicants who qualify in the examinations detailed in Appendix 4.

A candidate for the issue of a certificate must be a British subject, a British protected person or a citizen of the Irish Republic and, in addition, satisfy one of the following conditions:

- (a) if he was a British subject, a British protected person or a citizen of the Irish Republic at birth—
 - (i) at least one of his parents must be, or have been at death, a British subject, a British protected person or a citizen of the Irish Republic, or
 - (ii) the candidate must have resided in a country or territory within the Commonwealth or in the Irish Republic or been employed elsewhere in the service of the Crown or partly have so resided and partly been so employed for at least five years out of the last eight years;
- (b) if he was not a British subject, a British protected person or a citizen of the Irish Republic at birth, he must have resided in a country or territory within the Commonwealth or in the Irish Republic or been employed elsewhere in the service of the Crown or partly have so resided and partly been so employed for at least five years out of the last eight years;
- (c) if not qualified under (a) or (b) he must satisfy the Home Office that he is so closely connected with a country or territory within the Commonwealth either by ancestry,

upbringing or residence, or by reason of national service, that an exception may properly be made in his favour.

There are three classes of certificate, as well as a special certificate, for radiotelegraph operators, and two categories of certificate, general and restricted, for radiotelephone operators.

The holder of a maritime radiocommunication general certificate or the holder of a first or second class radiotelegraph operator's certificate may carry out the radiotelegraph or radiotelephone service of any ship or aircraft station.

The holder of a radiotelephone operator's general certificate may carry out the radiotelephone service of any ship station.

The holder of a radiotelephone operator's restricted certificate may carry out the radiotelephone service of any ship station, when working on frequencies of the maritime mobile service, provided that the operation of the transmitter requires only the use of simple external controls, and excludes all manual adjustment of frequency determining elements, with the stability of the frequencies maintained by the transmitter itself within the limits of tolerance specified by Appendix 3 (of the revised Radio Regulations, Geneva, 1974), and the peak envelope power of the transmitter does not exceed 1 kilowatt.

The radiotelegraph service of ships for which a radiotelegraph installation is not prescribed by international agreement, as well as the radiotelephone service of ship stations for which only a restricted radiotelephone operator's certificate is required, may be carried out by an operator holding a radiotelegraph operator's special certificate. However, the radiotelephone service of all ship stations may be carried out by an operator holding a radiotelegraph operator's special certificate issued after 1 January 1976 in accordance with WMARC, Geneva, 1974.

Exceptionally, the second class radiotelegraph operator's certificate as well as the radiotelegraph operator's special certificate may be limited exclusively to the radiotelegraph service. In such cases the certificate shall be suitably endorsed.

(3) **Authorities to Operate** granted by the Home Office specify the period over which they remain in force. However, the Secretary of State for the Home Department may at any time suspend an Authority to Operate with a view to its revocation if it appears to him that there are sufficient grounds so to do. In a case of suspension, the holder has the right to have the matter referred to an Advisory Committee under the First Schedule to the Wireless Telegraphy Acts 1949 to 1967. He must return the Authority to Operate to the Home Office upon receiving notice of suspension.

Lost Certificates

26. Certificates should be carefully preserved. In case of loss through avoidable causes, a duplicate will be issued only on payment of the requisite fee.

Operators' Service Qualifications

27. (1) The service qualifications, and personnel, required

(a) for ship stations operating in the public correspondence categories (Section 7(3)), are at least:
ship stations of the first category, except in the case provided for in (1)(c): a chief operator holding a maritime radiocommunication general certificate or a first class radiotelegraph operator's certificate. Before becoming chief operator the holder of a maritime radiocommunication general certificate or a first class radiotelegraph operator's certificate must have had, as operator on board ship or in a coast station, at least one year's experience of which at least six months must have been on board ship;
ship stations of the second and third categories, except in the case provided for in (1)(c): a chief operator holding a maritime radiocommunication general certificate or a first or second class radiotelegraph operator's certificate. Before becoming chief operator the holder of a maritime radiocommunication general certificate or a first or second class radiotelegraph operator's certificate must have had, as operator on board ship or in a coast station, at least six months' experience of which at least three months must have been on board ship;
ship stations of the fourth category, except in the cases provided for in (1)(b) and (1)(c): one operator holding a maritime radiocommunication general certificate or a first or second class radiotelegraph operator's certificate with adequate experience as determined by the administration.

(b) Ship stations in which a radiotelegraph installation is provided but not prescribed by international agreements: one operator holding a radiotelegraph operator's special certificate, a maritime radiocommunication general certificate or a first or second class radiotelegraph operator's certificate.

(c) Ship stations equipped with radiotelephone installation only: one operator holding either a radiotelephone operator's certificate or a radiotelegraph operator's certificate (see Section 25).

(2) The service qualifications, and personnel, required for ship stations under the Department of Trade classification of ships for safety purposes under the Merchant Shipping (Radio) Rules and Merchant Shipping (Radio) (Fishing Vessels) Rules are:

(a) Ships other than Fishing Vessels

CLASS I. Ships carrying more than 250 passengers or in respect of which there is in force a certificate issued by the Department of Trade, or by any authority empowered in that behalf by the laws of any country other than the United Kingdom, to the effect that they are fit to carry more than 250 passengers, and which:

- (i) in the case of British ships registered in the United Kingdom are at sea for more than sixteen hours between two consecutive ports;
- (ii) in the case of ships other than British ships registered in the United Kingdom, arrive at a port in the United Kingdom having been at sea for more than sixteen hours since last leaving port, or in respect of which clearance or transire is sought from a port in the United Kingdom for a voyage requiring more than sixteen hours at sea before reaching port.

CLASS II. (i) Passenger ships other than those of Class I.
 (ii) Cargo ships of 1,600 gross tons and upwards.

CLASS III. Cargo ships of 500 gross tons and upwards but of less than 1,600 gross tons.

CLASS IV. Cargo ships of 300 gross tons and upwards but of less than 500 gross tons.

(b) Fishing Vessels:

CLASS I. Fishing vessels of 12 metres in length or over engaged on voyages any part of which are outside the area specified in Schedule 2 to the Merchant Shipping (Radio) (Fishing Vessels) Rules.

CLASS II. Fishing vessels of 24.4 metres in length or over engaged only on voyages wholly within the area specified in Schedule 2 to the above Rules.

CLASS III. Fishing vessels of 12 metres in length or over but of less than 24.4 metres in length engaged only on voyages wholly within the area specified in Schedule 2 to the above Rules.

(3) It is necessary that maritime radiocommunication general certificates, first and second class radiotelegraph operators' certificates of competence issued by the Home Office should show when the holder has completed six months, twelve months' and two years' service as operator on board ship. Operators should therefore present their certificates to a Radio Surveyor for endorsement as and when the foregoing service qualifications have been obtained.

**Requirements for Ships (other than Fishing Vessels)
Equipped with Radiotelegraphy**

Class of Ship	Number of Radio Operators Required*		Sea Service Ex- perience of at least one of the Radio Operators.
	If ship not fitted with radiotelegraph auto- alarm apparatus.	If ship fitted with radiotelegraph auto- alarm apparatus.	
I	Three operators of whom at least one must hold a maritime radiocommunication general certificate or a first class radiotelegraph operator's certificate.	Two operators of whom at least one must hold a maritime radiocommunications general certificate or a first class radiotelegraph operator's certificate.	Two years
II(a)	Two operators if the ship is at sea for not more than 48 hours between consecutive ports, and three operators if it is at sea for more than 48 hours between consecutive ports. At least one operator must hold a maritime radiocommunication general certificate or a first class radiotelegraph operator's certificate.	One operator holding a maritime radiocommunication general certificate or a first class radiotelegraph operator's certificate.	One year
II(b)	As for II(a) except that all the operators may hold second class radio-	One operator holding a maritime radiocommunication gen-	Six months in the case of ships of 3,000 gross tons or

*Referred to in Merchant Shipping (Radio) Rules as "Radio Officers".

**Requirements for Ships (other than Fishing Vessels) equipped with Radiotelegraphy—
continued**

Class of Ship	Number of Radio Operators Required*		Sea Service Ex- perience of at least one of the Radio Operators.
	If ship not fitted with radiotelegraph auto- alarm apparatus.	If ship fitted with radiotelegraph auto- alarm apparatus.	
	telegraph operator's cer- tificates.	eral certificate or a first or second class radiotelegraph operator's certificate	upwards; three months in the case of ships of 1,600 gross tons and up- wards but under 3,000 gross tons.
III and IV	One operator if at sea for more than 12 hours be- tween consecutive ports, two operators if at sea for more than 12 but not more than 48 hours be- tween consecutive ports, and three operators if at sea for more than 48 hours between consecu- tive ports. All operators may hold a maritime radio communications general certificate or a first or second class radiotelegraph operator's certificate.	One operator holding a maritime radio- communication general certificate or a first or second class radiotelegraph operator's certificate.	Adequate

*Referred to in Merchant Shipping (Radio) Rules as "Radio Officers."

**Requirements for Ships (other than Fishing Vessels)
Equipped with Radiotelephony**

Class of Ship	Number of Radio Operators Required*		Sea Service Ex- perience of at least one of the Radio Operators
	Number of Radio Operators Required*		
III and IV	One operator holding a maritime radiocommu- nication general certificate, a first or second class radiotelegraph operator's certificate, a radio- telegraph operator's special certificate, or a general or restricted radiotelephone operator's certificate.		None

*Referred to in Merchant Shipping (Radio) Rules as "Radiotelephone Operators"

Requirements for Fishing Vessels Equipped with Radiotelegraphy

Class of Vessel	Number of Radio Operators Required*	Sea Service Experience of at least one of the Radio Operators.
I	At least two radio operators at least one of whom shall be a radiotelegraph operator holding a maritime radiocommunication general certificate, a first or second class radiotelegraph operator's certificate, or a radiotelegraph operator's special certificate. Other operators may hold any of the foregoing qualifications or a general or restricted radiotelephone operator's certificate.	Adequate

Requirements for Fishing Vessels Equipped with Radiotelephony

Class of Vessel	Number of Radio Operators Required*	Sea Service Experience of at least one of the Radio Operators.
II	At least two radiotelephone operators holding a maritime radiocommunication general certificate, a first or second class radiotelegraph operator's certificate, a radiotelegraph operator's special certificate, or a general or restricted radiotelephone operator's certificate.	Adequate
III	At least one radiotelephone operator holding a maritime radiocommunication general certificate, a first or second class radiotelegraph operator's certificate, a radiotelegraph operator's special certificate, or a general or restricted radiotelephone operator's certificate.	Adequate

*Referred to in Merchant Shipping (Radio) (Fishing Vessels) Rules as "Radiotelegraph Operators" and "Radiotelephone Operators" respectively.

(4) As a qualification for serving as a radio operator on a ship registered in the United Kingdom which is required to be equipped with radiotelegraph apparatus by the Merchant Shipping (Radio) Rules 1965 or the Merchant Shipping (Radio) (Fishing Vessels) Rules 1974, no certificate of competence shall be considered valid at any date if granted more than two years before that date and either:

- (a) the holder's periods of experience do not total three months, or
- (b) the holder's last experience was more than two years before that date unless the holder satisfies the Home Office by re-examination or otherwise that he still possesses all of the qualifications described in his certificate. The nature and extent of any re-examination will be determined by the length of time the applicant has been away from sea. The procedure is given in Appendix 4, Section 4.

PART 3—SHIPS' RADIO LOGS

Logs of Ships Equipped with Radiocommunication Apparatus

Required by the Merchant Shipping (Radio) Rules, 1965 and Merchant Shipping (Radio) (Fishing Vessels) Rules, 1974.

28. (1) Under the Merchant Shipping (Radio) Rules 1965, the Merchant Shipping (Radio) (Fishing Vessels) Rules 1974, and the Radio Regulations, every ship equipped with a radiotelegraph installation must carry a radiotelegraph log, and every ship fitted with a radiotelephone installation a radiotelephone log. (A specimen of each type of log is given in Appendix 5.) The Radiotelegraph Log must be kept in the radiotelegraph room during the voyage, and the Radiotelephone Log near the radiotelephone installation. The logs must be available for inspection by any officer authorised by the Department of Trade or the Home Office.

RADIOTELEGRAPH LOG

(2) The Radiotelegraph Log is compiled in two parts and must be completed in accordance with the following instructions:

Part 1

Section A—Particulars of the radio staff must be entered in the form provided.

Section B—A list of all batteries forming part of the main and reserve installations, including those used for the reserve lighting, the auto-alarm, the direction-finder and the automatic keying device (if separate batteries are provided for this purpose) and for the lifeboat radio equipment must be entered on the form provided.

Section C—A daily report on the charge condition of each battery must be entered. The report must contain details of the amount of charge given, if any, and any other maintenance such as topping-up, which has been carried out.

Section D—Once per month a full examination of each battery, cell by cell, must be made, and a report on the general condition entered, cell by cell, in this section.

Sections B, C and D are to be prepared in duplicate. The carbon copies (perforated sheets) must be detached prior to the handing in of the log and carefully filed in the radiotelegraph room so that a permanent record of the batteries will always be

available for the information of succeeding operators, shore maintenance staff and Radio Surveyors.

Part II

This part of the log will form a complete record of the work of the ship's radiotelegraph station for the period of the voyage. In opening the log the operator must record the names of the ports of departure and destination. He must then enter in chronological order:

- (i) His name, and the times at which he goes on and off watch.
- (ii) All distress messages and distress traffic in full.
- (iii) A positive entry each half hour during the hours of watch as to whether the ship station has observed the silence periods.
- (iv) All urgency and safety communications in full.
- (v) The approximate position of the ship at least once per day if the ship's rules permit.
- (vi) Details of voyage particulars (TR) forwarded to coast stations.
- (vii) A record of traffic lists which are read in accordance with Section 99 of this Handbook, as appropriate to the voyage on which the ship is engaged, and to any special instructions issued in Notices to Ship Wireless Stations.
- (viii) Calls and operating signals exchanged. (Entries in respect of messages or radiotelephone calls in the public correspondence service should be restricted to the call, serial number of the message or call and time received or sent. Difficulties encountered in disposing of traffic should be recorded.)
- (ix) Details of calls and operating signals of other ships and coast stations (entries relating to the working of other stations should be made about once every ten minutes).
- (x) Other service incidents, including any incidents connected with the radiotelegraph service, which occur during the watch and which may appear to be of importance to safety of life at sea.
- (xi) Times of arrival at and departure from intermediate ports.
- (xii) A positive entry when beginning or terminating loud speaker watch on the distress frequency, or when watch on the distress frequency is discontinued to enable the operator to perform other essential radiotelegraph duties which make it impracticable to maintain the watch.

- (xiii) Any failures of the main power supply or breakdowns of apparatus and details of repairs effected.
- (xiv) A record of the daily and other tests of the reserve transmitter and a daily statement that the reserve power supply is satisfactory or otherwise.
- (xv) A daily statement confirming that all batteries have been tested and brought up to the normal fully charged condition.
- (xvi) Details of the tests and any failures of the auto-alarm (if fitted). (These tests must be made before the commencement and at the end of each auto-alarm watch.)
- (xvii) The times at which auto-alarm watch is set and terminated.
- (xviii) Details of the weekly and other tests of lifeboat and/or portable radio equipment.
- (xix) A daily entry regarding comparison of the radiotelegraph room clock with Standard Time, including an indication of any errors observed and corrections made. Authentic time signals received from land stations shall be acceptable as Standard Time.
- (xx) Details of the daily test of the audible alarm circuits and the bells forming part of the auto alarm equipment.

The entries in Part II of the log are to be prepared in duplicate. The carbon copies (perforated sheets) must be detached and carefully fastened together in correct order to form a copy of the diary, which should be finally disposed of in the manner directed by the operating company or the shipowner as the case may be.

Notes on the Keeping of the Log. The importance of keeping the log correctly by duly making all entries at the proper time and with the strictest regard to form cannot be too strongly stressed. Care should be taken when there is a change of staff to see that the log, when handed over, is complete and up to date. Entries must always be made in order of time and date and no blanks left. The entry "on watch" must be made by the operator beginning a watch, followed by his signature. The entry "off watch" must be made by the operator being relieved or terminating his watch, followed by his signature. All log entries must be completed at the end of the watch by the operator responsible for the watch entries. The use of initials or signs cannot be accepted in lieu of the operator's signature.

If the number of pages in Part II of the log is insufficient, recourse should be made to a further copy or copies of Part II. Any copies used in continuation should be clearly marked with the order of sequence.

Inspection of the Log. Both parts of the log must be inspected daily and signed by the operator in charge. Both parts of the log should be submitted to the Master for inspection and his attention drawn to any entries of importance or interest. The Master must sign each day's entries in Part II of the log.

Disposal of the Log. In the case of foreign-going ships on single voyage agreements, Parts I and II of the log (with any continuation books) must be delivered, along with the Official Log Book, to the Superintendent of the Mercantile Marine Office before whom the ship's crew is discharged. This delivery must be made within 48 hours after the ship's arrival at her final port of destination in the United Kingdom. In the case of ships on half-yearly or other running agreements the complete radiotelegraph log for the previous half-year must be delivered to a Superintendent of a Mercantile Marine Office within 21 days of the termination of the current agreement. Before the radiotelegraph log is so delivered care should be taken to remove and dispose of the carbon copies as directed above.

RADIOTELEPHONE LOG

(3) The Radiotelephone Log is in two sections, and must be completed in accordance with the following instructions:

Section A—Particulars of the members of the crew qualified to operate the installation must be entered in the form provided.

Section B—This section of the log will form a complete diary of the radio service. The entries in this part of the log are to be prepared in duplicate. The carbon copies (perforated sheets) must be detached and carefully fastened together in correct order to form a copy of the diary, which should be finally disposed of in the manner directed by the operating company or the shipowner as the case may be. The entries to be made in this section must include:

- (i) The name of the operator, and the times at which he goes on and off radio watch.
- (ii) The time at which radio watch is for any reason discontinued, together with the reason, and the time at which radio watch is resumed.

- (iii) Details of all distress messages heard or sent and of any distress traffic which takes place. It is important that the general sense of these messages should be entered.
- (iv) A statement each half hour during the hours of watch that the silence period has been observed.
- (v) A summary of all urgency and safety communications received.
- (vi) A record of communications exchanged between the ship station and coast stations or other ship stations. Entries in respect of messages or radiotelephone calls in the public correspondence service should be restricted to the serial number of the message or call, and the time sent or received. (Messages should be recorded on the appropriate forms.) Difficulties experienced in disposing of traffic should be recorded.
- (vii) Important service incidents of all kinds, such as breakdowns of the installation and repairs effected.
- (viii) Details of the charging of batteries. The times when the batteries are placed on and taken off charge must be stated. In cases where the batteries are charged, or exchanged for charged batteries on shore, the log should show when and where the charging, or changing, was made.
- (ix) The approximate position of the ship at least once per day if the ship's rules permit.
- (x) Details of weekly tests of the portable radio equipment.

Notes on the Keeping of the Log. It is important that the log should be correctly kept by making all entries at the proper time, being always complete and up to date. Entries must always be made in order of date and time and no blanks left. The entries "on watch" and "off watch" must be followed by the operator's signature. All log entries must be completed by the end of the watch. If the number of pages in Section B of the log is insufficient to cover the period of currency of the log, the log should be continued in a separate book.

Inspection of the Log. The Master must inspect and sign each day's entries in the log, and where the Master is not the radiotelephone operator the latter should inspect and sign the log daily and submit the log to the Master for his signature, drawing his attention to any entries of importance or interest.

Disposal of the Log. In the case of foreign-going ships the radiotelephone log (with any continuation books) must be

delivered, along with the Official Log Book, to the Superintendent of the Mercantile Marine Office before whom the ship's crew is discharged. This delivery must be made within 48 hours after the ship's arrival at her final port of destination in the United Kingdom.

In the case of ships on half-yearly or other agreements, the radiotelephone log should be delivered to a Superintendent of a Mercantile Marine Office within 21 days of the termination of the agreement. Before the radiotelephone log is so delivered care should be taken to remove and dispose of the carbon copies as directed above.

Logs of other Ships Equipped with Radiocommunication Apparatus

29. Under the Radio Regulations each such ship fitted with a radiotelegraph or a radiotelephone installation must carry a radio log (Diary of the Radio Service). The time of all entries made in the log must be in Greenwich Mean Time. Each sheet of the log must be numbered and dated, and when complete must be filed either aboard the ship or at established offices of the licensee. The log must be available for inspection by any officer authorised by the Department of Trade or the Home Office.

The following entries must be recorded in the log as they occur with the time of their occurrence:

SHIP RADIOTELEGRAPH STATIONS

- (i) The operator's name and the times at which he goes on and off watch.
- (ii) Time of arrival at and departure from ports, giving names of each.
- (iii) All communications relating to distress traffic in full.
- (iv) All urgency and safety communications.
- (v) All communications exchanged between the ship station and coast stations or other ship stations.
- (vi) Service incidents of all kinds, such as failures of power supply or breakdowns of apparatus, and details of repairs effected.
- (vii) The position of the ship at least once per day if the ship's rules permit.

SHIP RADIOTELEPHONE STATIONS

- (i) The operator's name and the times at which he goes on and off watch.
- (ii) Time of arrival at and departure from ports, giving names of each.

- (iii) A summary of all communications relating to distress, urgency and safety traffic.
- (iv) A record of communications exchanged between the ship station and coast stations or other ship stations.
- (v) A reference to important service incidents, such as failures of power supply or breakdowns of apparatus.
- (vi) The position of the ship at least once per day if the ship's rules permit.

Battery Maintenance, Particulars to be Entered in Log

- 30. If secondary batteries form part of the radio installation of a ship station, not prescribed to be equipped with radiocommunication apparatus under the Merchant Shipping (Radio) Rules or the Merchant Shipping (Radio) (Fishing Vessels) Rules, they should be maintained in a fully-charged condition. A statement that this requirement has been fulfilled must be inserted in the radio log each day.

CHAPTER II

Radiotelegrams, Radiotelephone and Radiotex Calls

PART 1—PREPARATION AND HANDING IN OF RADIOTELEGRAMS

Acceptance of Radiotelegrams

31. A radiotelegram is made up of the following parts arranged in order:

- (a) preamble;
- (b) service indications;
- (c) address;
- (d) text;
- (e) signature.

The preamble consists of the prefix (if any), the name of the ship or office of origin, the serial number of the radiotelegram, the number of words, the date and time of handing-in, and any service instructions required such as information for the routing of the telegram.

The date and time of handing-in consist of two groups of figures, the first indicating the day of the month and the second the time of handing-in, in G.M.T., by means of a four figure group 0001 to 2400.

The service indication either identifies the radiotelegram as being within a particular class or denotes a special service requested by the sender, or in some cases, by the addressee. The address must contain all the particulars necessary to ensure delivery of the radiotelegram to the addressee without enquiries or requests for information. The text and signature may be expressed in plain language or in secret language. These languages may be used together in the same telegram except in the case of radiotelegrams to those countries, shown in the table of telegraph rates in the Post Office Guide, which either do not admit secret language telegrams, or admit them only subject to certain restrictions.

The name and address of the sender should be written in the appropriate space on the form; these particulars must be supplied if the service (e.g.=PC=) sought by the sender requires it.

A duplicate of each radiotelegram delivered to a person on board a ship must be made out at the time of receipt. The duplicate form should show, in addition to the actual message and usual service particulars, the date and time of receipt, the time at which it was delivered to the addressee, and, if received through a coast station, the name of the coast station.

In the case of a radiotelegram handed in on board ship the particulars to be transmitted in the preamble should be entered on the form by the accepting officer, together with the total amount charged, the date and time of transmission to the coast or ship station, the name of such station, and the signature of the transmitting officer.

A note should also be made of any other point likely to affect the accounts, for instance, failure to obtain an acknowledgment of receipt.

The forms of radiotelegrams accepted and the duplicates of those delivered on board ship must be disposed of as arranged between the Home Office and the Licensee or the Company operating the ship station; precautions must be taken to ensure secrecy.

Classes of Radiotelegram Not Admitted

32. The following classes of radiotelegram cannot be accepted:

- Money order telegrams.
- Telegrams "to follow the addressee".
- Urgent radiotelegrams, except as regards transmission over the telegraph systems of administrations which accept such telegrams (see also Section 46).
- Letter telegrams. (This prohibition does not apply to the Radiomaritime Letter (Ship Letter Telegram) service through coast stations.)
- Telegrams without text.
- Telegrams for multiple destinations.

Sender's Instructions

33. A sender, on giving the necessary instructions and paying the appropriate fees, may:

- prepay a reply of any value to his radiotelegram;
- have the radiotelegram repeated from office to office during transmission;
- cancel, alter or amplify a radiotelegram already transmitted;

- (d) have his radiotelegram delivered to a "Poste Restante" or "Telegraph Restant";*
- (e) have it delivered (in certain cases) by post or special means;*
- (f) have it delivered to the addressee in person;*
- (g) secure priority for the radiotelegram over the telegraph systems of those administrations which accept "urgent" telegrams.

These special services are described in detail in Part 3.

Prefixes

34. The prefixes used in radiotelegrams are shown in Appendix 2.

Routing of Radiotelegrams

35. The sender of a radiotelegram from a ship need not be asked to select a route for transmission beyond the coast station. If the telegraph tariff shows more than one rate of charge for the class of telegram to the destination concerned, the sender must choose a rate, and if he chooses a rate which applies only to one route, the name of that route should be entered in the service instructions. If he chooses a rate applicable to more than one route, the actual rate (e.g. "4/5 rate", "5 fr. 30 rate", or "5 fr. 30 tariff" as appropriate) must be entered in the service instructions and signalled forward.

If the sender uses the form of a particular Telegraph Company and a rate to the place in question by the Company's route is shown in the tariff, the form must be taken as indicating the sender's choice of the route concerned.

Any route indication should be signalled to the coast station in the service instructions of the radiotelegram. The abbreviated forms of route indications, shown in the tariff, should be used.

Plain Language

36. Plain language is that which presents an intelligible meaning in one or more of the languages admitted for international telegraph correspondence, each word and each expression having the meaning normally assigned to it in the language to which it belongs. Radiotelegrams in plain language may be expressed in any of the principal European languages; in addition, Latin and Esperanto may be admitted. They must be written in letters of the English alphabet.

*Not available to addresses in the United Kingdom.

By telegrams in plain language are meant those of which the text and signature are wholly in plain language.

The text and signature of telegrams originating in or destined for China may be expressed wholly by means of groups of four figures taken from the official telegraph dictionary of the Chinese Administration.

A telegram in plain language may also contain:

- (a) numbers written in letters or figures;
- (b) proper names or abbreviated addresses;
- (c) groups comprising letters, figures, signs or any combination of them, provided that they have no secret meaning. Such groups shall not exceed 20 characters in length and shall not contain accented letters.
- (d) a single check group placed at the beginning of the text and not exceeding 20 characters in length.

Secret Language

37. Radiotelegrams in secret language are those containing in their text or signature one or more words in secret language.

Secret language comprises:

- (a) groups of letters, figures, signs or any combination of letters, figures or signs having a secret meaning. Such groups shall not exceed 20 characters in length and shall not contain accented letters;
- (b) real words belonging to one or more of the languages admitted for telegraph correspondence in plain language which are not used with the meaning normally assigned to them in the language to which they belong and consequently do not form intelligible phrases;
- (c) other words or expressions not fulfilling the conditions laid down for plain language.

Address

38. (1) The following categories of address of a radiotelegram from a ship are permitted (where appropriate, supplemented by a postal code designation):

- (a) full address;
- (b) registered address;
- (c) telephonic address;
- (d) telex address;
- (e) "Poste Restante" or "Telegraph Restant" address;*
- (f) post office box address.

*Not available to addresses in the United Kingdom.

If it is doubtful whether, without any addition, a message could be correctly routed without difficulty, a ship station not supplied with the Official List of Telegraph Offices may add to the name of the telegraph office of destination:

- the name of the territorial subdivision, or
- the country of destination, or
- both of the above.

The name of the telegraph office and the supplementary particulars are then counted and charged for as a single word. The coast station operator receiving the radiotelegram retains or deletes these particulars, or further amends the name of the office of destination as necessary for forwarding the radiotelegram to its proper destination.

The address of a telegram addressed "Poste Restante" or "Telegraph Restant" must include the name of the addressee and, where possible, his christian name or initials; the use of initials alone, figures, christian name only, fictitious names or arbitrary signs of any kind, is not allowed in the address of such messages.

In the address of a radiotelegram for China, groups of four figures may be used to designate the name and abode of the addressee.

(2) The address of radiotelegrams destined for ship stations must be as complete as possible and must include:

- (a) the name or designation of the addressee, with supplementary particulars if necessary;
- (b) the name of the ship station followed, when necessary, by its call sign, the latter separated from the name of the station by a fraction bar, as shown in the List of Ship Stations;
- (c) the name of the coast station through which the message is to be forwarded, as it appears in the List of Coast Stations.

If the ship does not appear in the List of Ship Stations, the sender should, if possible, indicate the nationality and route followed by the ship.

The name and call sign may be replaced, at the risk of the sender, by particulars of the passage made by such ship, indicated by the names of the ports of departure and of destination, or by any other equivalent indication.

When, because of duplication of names, the name of a ship station is followed by its call sign, the latter is separated from the name of the station by a fraction bar.

EXAMPLE: ORIANA/GVSN (not ORIANAGVSN).

PART 2—COUNTING OF WORDS IN RADIOTELEGRAMS

Counting of Chargeable Words

39. The number of words counted for purposes of charge should include all that the sender writes on the telegraph form to be transmitted. No charge is to be made for the transmission of the particulars in the preamble.

Words, Groups and Expressions Counted as One Word Regardless of the Number of Characters

40. (1) The following shall be counted as one word:

- (a) service indications;
- (b) in paid service advices, the original telegram number together with the date of origin, the number or numbers of the preceding paid service advice or advices, together with the relevant date or dates of origin. The number and the date should be separated by a fraction bar;
- (c) each isolated letter or figure;
- (d) each isolated sign to be transmitted at the express request of the sender.

(2) In the address the following are counted as one actual word and as one chargeable word:

- (a) the name of the telegraph office or land station of destination written as it appears in the first column of the List of Telegraph Offices or the List of Coast Stations and completed by all the particulars given in that column;
- (b) the name of the telegraph office or the land station of destination completed either by the name of the country or smaller division of territory, or both, or by any other particulars when the name of the office has not been published in the List of Telegraph Offices or the List of Coast Stations;
- (c) the name of the ship station of destination written as it appears in the List of Ship Stations;
- (d) the name of the ship of destination, completed if necessary by the call sign of the station, or by any other particulars when this name does not appear in the List of Ship Stations;

- (e) the name of the telegraph office of destination suffixed by particulars intended to distinguish it from other offices of the locality. This suffix should be separated from the name of the office of destination by brackets, e.g., BERLIN(19);
- (f) the name of the telegraph office of destination, preceded or followed by the postal code as given by the sender; the postal code should be enclosed in brackets by the accepting officer and the whole should be transmitted as one word; e.g. LONDON(EC2V6JH);
- (g) the geographical or administrative name of the place where the telegram has to be delivered, in case this locality has no telegraph office;
- (h) the telephone number and the name of the exchange together with the indicator = TF =, e.g. = TF 873455 = or = TF Murray Hill 9-12 =. Similarly, a telex number together with the indicator = TLX = e.g. = TLX 20074 =.

When the different parts of each of the expressions specified in (1) (a), (2) (a) to (e) and (2) (g) are not already joined up, the accepting officer should do so. If this alters the meaning of the service indications or the name of the office of destination, the accepting officer should separate the different parts by a fraction bar and the whole shall count as one word (both actual and chargeable).

Words, Groups and Expressions Counted at the Rate of One Word for Each Fifteen Letters

41. The following shall be counted at the rate of fifteen letters to the word, plus one word for each fifteen letters or fraction of fifteen letters in excess:

- (a) each word appearing in a standard dictionary of one of the admitted languages, each other word in common use in one of those languages, provided it is not a combination or a contraction of such words or any expression contrary to the usage of the language;
- (b) each registered address;
- (c) words separated or joined by an apostrophe, a hyphen or a fraction bar, when they so appear in a standard dictionary of one of the admitted languages.

Unless the sender desires otherwise, the parts may be joined into a single word, deleting the apostrophe, hyphen or fraction bar.

If they do not appear in a standard dictionary in this form as a single word, or they are not words in common usage, and if the sender expressly requests the transmission of the sign in question, the groups shall be counted as chargeable words in accordance with Section 42.

- (d) Exceptionally, the following are counted at the rate of fifteen letters to the word if written without a break: family names; full or abbreviated names of places, squares, boulevards, streets, canals, rivers and other public ways; names of ships, aircraft, railway trains, etc.; whole numbers, fractions, decimal or fractional numbers written in words; ordinary compound words; in the text and signature, names of telegraph offices, and of land and ship stations, names of towns, countries and smaller divisions of territory (see Section 40, (2) (a) to (h)). If the accepting officer observes that the elements of such names have not been joined by the sender he should draw the attention of the sender to the possibility of such grouping.
- (e) Other names in the address, text or signature should be counted in the number of chargeable words as separate words in accordance with (a) to (c) above.

Words, Groups and Expressions Counted at the Rate of One Word for Each Five Characters

- 42. The following shall be counted at the rate of five characters to the word, plus one word for each five characters or fraction of five characters in excess:
 - (a) groups composed of letters, figures, signs, or, in the cases authorised in Section 36, (a) and (c), of a mixture of these various characters.
 - (b) except that, when a hyphen or dash is used to join up a whole number to a fraction or a number to a percentage sign or per thousand sign, it shall not be counted as a character even when the sender has written it on the form. The same applies to a fraction bar appearing in a group of figures or of figures and letters forming a house number in the address;
 - (c) words and expressions not fulfilling the conditions laid down in Sections 40 and 41.

- (d) the two signs forming brackets (parentheses) and the signs forming quotation marks (inverted commas) enclosing a group or groups shall be considered as an integral part of the word, or words, enclosed and the group, or groups, shall be treated as groups of mixed letters and signs chargeable at 5 characters to the word: e.g. (responsible), 3 chargeable words.
- (e) each isolated sign—including fraction bar, hyphen, dash or apostrophe used to join or separate words shall be treated as groups of mixed letters and signs and chargeable at 5 characters to the word: e.g., August/September 4 chargeable words.

Indication in the Preamble of the Number of Words

43. If there is a difference between the number of words reckoned according to the rules for charging and the number of actual words, a fraction must be used, the numerator indicating the number of words reckoned according to the rules for charging and the denominator the number of actual words, e.g. 21/20.

Examples of Counting

44.

Words, etc.	No. of characters	No. of words counted	
		In the address	In the text
= RP2.50 = (service indication)	—	1	—
= TF MURRAY HILL 9-1234 (" ")	—	1	—
= TLX 20074 = (" ")	—	1	—
Van de Brande	—	3	3
Van debrande	—	2	2
Vandebrande	—	1	1
Saint James Street	—	3	3
Saintjames Street	—	2	2
Saintjamesstreet	16	2	2
Saintjamesst	12	1	1
East36thstreet (exceptional case – figures in name of street)	14	1	1
UNESCO (see Section 41, (e))	—	1	1
SN/KL384 (designation of aircraft) ..	8	2	2
15A (House number transmitted in address as 15/A)	—	1	1
1021A/5 (House number transmitted in the address as 1021/A/5)	6	2	2
*New York	—	1	2
Newyork	—	1	1
*Frankfurt Main	—	1	2
Frankfurtmain	—	1	1
Emmingenkrsoltau	16	1	2
*Brooklyn 38 Newyork	—	1	3
Brooklyn38Newyork (exceptional case – figures in name of telegraph office) ..	17	1	2
*Queen Elizabeth (ship)	—	1	2
Queenelizabeth (ship)	—	1	1
Two hundred and thirty four	—	5	5
Twohundredandthirtyfour	23	2	2
44½ (transmitted 44-½)	5	—	1
444½ (transmitted 444-½)	6	—	2
25% (transmitted 25-0/0)	5	—	1
25%; (transmitted 25-0/00)	6	—	2
27th	—	1	1
L10 or £10	—	—	1
17½p	6	—	2

*In the address these different expressions shall be joined by the accepting officer.

Examples of Counting—*continued*

Words, etc.	No. of characters	No. of words counted	
		In the address	In the text
52½p	6	—	2
11hr30	6	—	2
11.30	5	—	1
thirtythirty (instead of three thousand and thirty)	12	—	1
threepointthirty	16	—	2
Envchf (commercial mark)	6	—	2
GHF (commercial mark)	—	—	1
G H F (separate letters)	—	—	3
GHF45	—	—	1
Tenpounds (irregular combination)	—	—	2
May/August	—	—	2
201200Z	7	—	2
5020N	5	—	1
5/12/75	7	—	2
(January)	9	—	2
(25.35)	7	—	2
OC(HNCO)2CH2 (chemical formula) ..	12	—	3

PART 3—SPECIAL RADIOTELEGRAMS

Service Indications

45. The sender must write on the form, immediately before the address, any instructions relating to the class of service (Urgent, SLT or Press) or to delivery, prepayment of reply, collation, etc. These instructions, which are called Supplementary Instructions, must be expressed in abbreviated form. Only the authorised abbreviations as given below are to be transmitted and, if necessary, the instructions written by the sender must be altered to agree with the relative authorised abbreviation.

Government telegrams (including telegrams relative to the application of the United Nations Charter) = ETATPRIORITY NATIONS
= ETATPRIORITY or ETAT

Radiotelegram to be given priority over the ordinary telegraph system . . . = Urgent =

Radiomaritime Letter (Ship Letter Telegram) = SLT = *

Radiomaritime Ocean Letter = OL =
Press radiotelegram = Presse =

Radiotelegram with reply paid = RPx = †

Radiotelegram to be collated, i.e. repeated from office to office throughout transmission = TC =

Radiotelegrams to be delivered to the addresses in person = MP = ‡

Radiotelegram to be delivered by post = Poste = ‡

Radiotelegram to be delivered by airmail = PAV = ‡

Radiotelegram to be delivered by registered airmail = PAVR = ‡

Radiotelegram to be posted as a registered letter = PR = ‡

Radiotelegram concerning persons protected in time of war by the Geneva Convention of 12 August 1949 = RCT =

*From ships only.

†Amount prepaid to be inserted in lieu of x, e.g., "£0.30" or "18.90" (franc currency).

‡Not available to addresses in the United Kingdom.

Radiotelegram for which delivery on a specified date has been requested	= Remettre = ‡
Radiotelegram for express delivery when the cost of delivery is to be collected from the addressee	= Exprès = ‡
Radiotelegram for express delivery in the country of the coast station, when the cost of delivery is prepaid	= XP = ‡
Radiotelegram, Greetings Telegram ..	= LX =
Radiotelegram not to be delivered during the night	= Jour = ‡
Radiotelegram to be delivered during the night if received then	= Nuit = ‡
Radiotelegram to be called for at a Telegraph Office	= TR = ‡
Radiotelegram to be called for at a Post Office	= GP = ‡
Radiotelegram to be called for at a Post Office (registered)	= GPR = ‡
Radiotelegram of which the date and time of transmission to the ship is to be notified by the coast station by telegraph	= PC =
Radiotelegram to be held at the disposal of the ship by the coast station for a fixed number of days	= Jx = †
Radiotelegram for which delivery by Telex has been requested	= TLXx = §
Radiotelegram of which delivery by telephone is requested	= TFx = §
Radiotelegram on Official Meteorological Service	= OBS =
Service advices	= A =
Paid service advices	= ST =
Reply to paid service advices	= RST =

These service indications (supplementary instructions) must be entered and signalled before the address. The double hyphens

†Figure representing number of days to be inserted in lieu of x.

§Telephone or Telex number to be inserted in lieu of x, e.g., = TF Passy 5074 =

‡Not available to addresses in the United Kingdom.

are not charged for, but they should be transmitted in the form of the break-sign.

In meteorological radiotelegrams the service instruction = OBS = must be placed at the beginning of the preamble, and the service indication = OBS = before the address.

Urgent Radiotelegrams

46. Senders of radiotelegrams to most countries may secure priority in transmission over the ordinary telegraph system and in delivery by writing the service indication = URGENT = before the address and by paying double the amount of the ordinary telegraph charge in addition to the normal coast and ship station charges. (This service is not available to senders of radiotelegrams destined for places in the United Kingdom and the Irish Republic and sent through coast stations in the United Kingdom and Irish Republic.)

Radiomaritime Letters (Ship Letter Telegrams)

47. A radiomarine letter (Ship Letter Telegram) service, for non-urgent messages, is in operation through coast stations in the United Kingdom and the Irish Republic on the following conditions:

- (a) The service is available in the direction from ship to shore only.
- (b) Ship Letter Telegrams (SLT's) should be sent after full rate traffic.
- (c) Messages are accepted only for destinations in the United Kingdom and Irish Republic and must bear an adequate postal address. Abbreviated telegraphic addresses are inadmissible.

Coast stations cannot amend or correct incomplete postal addresses of radio maritime letters. These are posted to the addresses furnished by the senders who are responsible for the sufficiency of addresses, as in the case of all other postal packets. Accepting operators should enquire of senders as to the accuracy and sufficiency of the addresses when accepting the messages, adding a reminder that either inaccuracy or insufficiency of address might entail considerable delay in delivery.

The postal code designation should be included in the address.

Messages are forwarded from the coast station by ordinary post.

The service indication = SLT = must be inserted before the address; it is counted and charged for as one word. A special form is used at coast stations; to avoid delay in taking such

traffic the indication SLT should be added to the call made to the coast station when communication is established.

The service indication for reply by ordinary radiotelegram = RP = is also admitted with radiomaritime letters.

As a general rule, the text is subject to the regulations applicable to letter telegrams, namely:

- (a) the text must be expressed wholly in plain language;
- (b) if asked to do so by the office of origin, the sender must sign a declaration on the telegraph form that the text is expressed in plain language and that it bears no meaning other than that which appears on the face of it. The declaration must indicate the language used;
- (c) arrangements may be made for the senders of certain types of message, such as birthday and Christmas greetings, to include an indication of the desired date of delivery. The Post Office will endeavour to arrange delivery accordingly.

The charges for this class of letter telegram from United Kingdom ships through coast stations in the United Kingdom and Irish Republic are shown in the current Notices to Ship Wireless Stations.

A similar service is available through coast stations of certain other countries for delivery within those countries, unless it is indicated in the List of Coast Stations that the station concerned will accept such traffic for onward transmission by post to places in other countries.

The conditions of acceptance and the charges are shown in the List of Coast Stations.

Press Radiotelegrams

48. In the direction ship to shore, press radiotelegrams are accepted for destinations in most countries. Such radiotelegrams must conform to the following conditions:

- (a) the text must consist of information and news for publication in newspapers and other periodical publications or for radio or television broadcasting, and comments relative to the publication or broadcasting of such matter provided that such comments are placed between brackets at the beginning or at the end of the text. The number of words (excluding the brackets) thus added to the text must not exceed 10% of the total number of chargeable words in the text and must not exceed twenty. The comments and the brackets are charged at the same rate as the text;

- (b) they bear, at the beginning of the address, the service indication = PRESSE = written by the sender;
- (c) they must be written in plain language in one of the languages admitted for international telegraph correspondence in plain language, chosen from among the following languages:
 - (i) the French language;
 - (ii) the language of the newspaper, periodical publication or news agency bulletin to which the radiotelegram is addressed or the language in which the radio or television broadcast is carried out;
 - (iii) the national language or languages of the country of the ship of origin of the country of destination, designated by the administrations concerned;
 - (iv) one or more additional languages which may be designated by the administration of origin or the administration of destination as being used in their territories.

These languages may be used for quotations together with the language in which the radiotelegram is written;

- (d) subject to the exception provided in (a) above, they must not contain any passage, announcement or communication having the character of private correspondence, nor any advertisement or communication for insertion in any publication, for radio broadcasting or for televising whether or not a charge is made;
- (e) they may be addressed only to newspapers or periodical publications, to news agencies or bureaux, to press services of diplomatic missions or to authorised radio sound or television broadcasting companies, organisations or stations and not to the name of a person connected in any capacity whatever with any of these entities;
- (f) administrations or recognised private operating agencies may require that press telegrams shall be accepted only from authorised representatives of newspapers, periodical publications, news agencies or bureaux, or press services of diplomatic missions, authorised radio sound or television broadcasting companies, organisations or stations. Administrations or recognised private operating agencies may require the sender of a press telegram to be registered as the accredited correspondent of the addressee and may issue cards of identification without which the radiotelegram need not be accorded press rates.

Stock exchange and market quotations, results of sporting events and meteorological observations and forecasts, with or without explanatory text, are admitted in press telegrams.

The only special service allowed is: URGENT, if this service is admitted by the country of origin or destination. The corresponding service indication = URGENT =* is charged for at the reduced rate.

Prepaid Replies

49. The sender of a radiotelegram may prepay a reply up to any value by writing the service indication = RP = followed by the amount prepaid, expressed in British decimal currency in pounds and new pence (e.g. = RP £1.47½) if the radiotelegram is:

- (a) exchanged between two United Kingdom ships; or
- (b) sent from a United Kingdom ship to any destination through a coast station in the United Kingdom or the Irish Republic.

In other cases the amount prepaid should be shown in gold franc currency (e.g. = RP3.05 =).

In the case of a radiotelegram from a ship to a telegraph office on land to which a reply has been prepaid, the reply voucher issued to the addressee by the delivery office will be accepted, during a period of three months following the date of issue, at any office of the country of destination in payment or part payment of a telegram or radiotelegram.

When a radiotelegram to which a reply has been prepaid is received on board ship, a reply voucher, showing the date of issue, must be completed and delivered with the radiotelegram. The reply voucher issued on board gives the right to send, up to the limit of its value and within a period of three months, a radiotelegram to any address whatever from the ship station which has issued the voucher.

A reply must not be accepted without payment unless a pre-paid reply voucher is tendered in payment or part payment. If the reply costs more than the value of the voucher tendered, the sender of the reply must pay the balance.

Radiotelegrams to be Collated

50. The sender of a radiotelegram may have it collated, i.e. repeated at each station or office during transmission, by paying in addition to the normal charge half as much again.

Stations and offices receiving a "collated" telegram must

*Not available to addresses in the United Kingdom.

immediately repeat it back to the station or office from which it was received. Upon receipt of the repetition, stations and offices must compare it with the copy from which transmission was made and take steps to correct any error which may have arisen. No copy of the repetition should be given to the sender of the message.

The service indication = TC = indicating collation, is charged for as one word.

Radiotelegram to be Delivered to the Addressee in Person

51. The sender of a radiotelegram may ensure that delivery is made only to the addressee in person by writing before the address the service indication = MP =. Any other method of delivery (post, telephone or private wire) is then excluded. (This service is not available to the senders of radiotelegrams destined for places in the United Kingdom and the Irish Republic.)

Radiotelegrams to be Delivered by Special Means

52. (1) The sender may give instructions for his radiotelegram to be posted to its destination from a telegraph office situated in the country of destination, as for example when the locality of destination is not served by telegraph. Exceptionally, when addressed to a locality not served by international telecommunication channels or when the locality cannot be reached by the telecommunication system of the country of destination, delivery may be effected by this means from a telegraph office of another country. When the radiotelegram is to be forwarded in this way no fee is charged for postage. In either case the service indication = Poste =, which is counted and charged for as one word, should be inserted before the address. For example, the address of a radiotelegram to be forwarded by post from Teramo to Poggiovalle, a locality not served by telegraph, should be worded in the following manner:

“= POSTE = LORENZINI POGGIOVALLE TERAMO”

The name of the terminal telegraph office should always be written last in the address. Radiotelegrams may also be posted as registered letters, or by airmail or registered airmail, by inserting the appropriate service indication.

This service is not available to addresses in the United Kingdom.

Supplementary charges must be prepaid; the appropriate charges should be ascertained from the coast station through which the radiotelegram is sent.

(2) If a quicker means than the post is to be used the porterage is, as a rule, recovered from the addressee, and the address must then be worded as in the following example:

“EXPRES = LORENZINI POGGIOVALLE TERAMO”.

The service indication “Exprès” (denoting porterage) is charged as one word.

If the porterage charge is notified in the Official List of Telegraph Offices against the office of destination, the sender may pay the relative amount, and in that case the service indication = XP = must be inserted before the address.

This service is not available to addresses in the United Kingdom.

(3) If the addressee is connected by telephone with the office of destination a sender may give instructions for his radiotelegram to be delivered by telephone. In this case he must write before the address the service indication = TF . . . =, completed by the telephone number of the addressee, the whole expression counting as one word, e.g.,

- = TF 873455 = SCHUTZ HAMBURG = (counts three words);
- = TF PASSAY 5074 = PAULI PARIS = (counts three words);
- = TF MURRAY HILL 9-1234 = JOHN JONES NEW-YORK = (counts four words).

Such radiotelegrams are, whenever possible, transmitted to the addressee by telephone unless this is contrary to the regulations of the administration of the country of destination or the addressee has expressly requested that his telegram should not be delivered to him by telephone.

(4) Similarly, if the addressee is connected to the office of destination by Telex, the sender may give instructions for his radiotelegram to be delivered by Telex. In this case he must write before the address the service indication = TLX . . . = completed by the telex number of the addressee, the whole expression counting as one word, e.g., = TLX 20074 = Pauli Paris = (counts three words).

(5) As an exception to (3) above, and exclusively when the radiotelegram is sent through a coast station in the United Kingdom and destined for a place in the United Kingdom or Irish Republic, the address may be written in the form “Jones Midland 245 Birmingham”, or Jones 021-465 75546. (The total number of chargeable words is three, made up of: one word for the name of the addressee; two words for the name of the

exchange, the number, and where necessary, the name of the town).

Radiotelegrams to be Called for

53. In the case of a radiotelegram which is intended to be left at a telegraph office or post office until called for, the service indication = TR =, = GP = or = GPR = must be inserted before the address.

These services are not available to addresses in the United Kingdom.

Radiotelegrams to be Held at a Coast Station for a Fixed Number of Days

54. The sender of a radiotelegram to a ship at sea may specify the number of days during which the coast station may hold the radiotelegram by writing before the address the service indication = Jx = (x days) specifying the number of days (ten at the most) exclusive of the day of handing-in of the radiotelegram.

When it has not been possible for a coast station to transmit to a ship station:

- a radiotelegram bearing the service indication = Jx = within the prescribed period, or
- a radiotelegram not bearing this service indication up to the morning of the fourth day following the date of handing-in,

the coast station informs the office of origin, which notifies the sender. The latter may ask, by paid service advice, addressed to the coast station, either that his telegram be cancelled as regards the section between the coast station and the ship station or that further attempts at transmitting it to the ship station be made during a period of another seven days at the most. Failing such a request, the radiotelegram is treated as undelivered by the coast station three days after the despatch of the advice of non-transmission. The same applies upon the expiry of any period for further attempts which may have been requested by the sender if it has been impossible to reach the ship. The office of origin must be advised immediately if the coast station transmits the radiotelegram during the last mentioned period of three days. The same applies if the coast station transmits the radiotelegram during the additional period which may have been requested by the sender.

On the morning of the day following that on which a radiotelegram to a ship station is treated as undelivered by the coast station, the latter must advise the office of origin which notifies

the sender. The ship station charge and the charges for the special telegram services not performed shall be refunded to the sender.

The lapse of any of the periods mentioned in (a) and (b) above is ignored if the coast station is sure that the ship station will soon come within its service area.

On the other hand, the lapse of these periods is not awaited when the coast station is sure that the ship station, being in the course of a voyage either has definitely left its service area or will not enter it. If it believes that no other coast station of the administration or of the private enterprise to which it is subject is or will be in touch with the ship, the coast station cancels the radiotelegram as far as concerns the section between itself and the ship station and informs the office of origin which notifies the sender. In the contrary case, the coast station forwards the radiotelegram to the coast station believed to be in touch with the ship station, provided, however, that no additional charge results therefrom.

The coast station which carries out the redirection by wire, alters the address of the radiotelegram by placing after the name of the ship station that of the new coast station charged with the transmission and adding at the end of the preamble the service instruction "redirected from x Radio" which must be transmitted throughout the course of the radiotelegram.

If within the limits of the requisite period of retention of radiotelegrams, the coast station which has redirected a radiotelegram to another coast station is subsequently in a position to transmit the radiotelegram direct to the ship station of destination, it does so by inserting the service instruction "ampliation" before the preamble. It then transmits to the coast station to which the radiotelegram has been redirected a service message informing the latter of the transmission of the radiotelegram.

When a radiotelegram cannot be transmitted to a ship station owing to the arrival of the ship in a port near the coast station, the latter may, according to circumstances, forward the radiotelegram to the ship station by other means of communication, at the same time informing the office of origin by service message of the delivery. In this case the coast station charge is retained by the administration to which the coast station is subject and the ship charge is refunded to the sender by the administration to which the office of origin is subject.

De-Luxe (Greetings) Radiotelegrams

55. De-Luxe (Greetings) radiotelegrams may be sent by ship stations for delivery to addresses in the United Kingdom. At the delivery

office such radiotelegrams are written on a standard greetings telegram form and delivered in a decorated envelope. They may be sent to telephonic addresses in the United Kingdom on the understanding that they will be delivered by telephone and a confirmatory copy on the standard greetings telegram form posted to the addressee.

De-Luxe radiotelegrams may also be sent to addresses in certain other countries, but not to telephonic addresses.

The charge for de-luxe radiotelegrams is the normal radiotelegram charge to the country concerned. The service indication = LX = should be inserted before the address and charged for as one word.

Ocean Letters and Poste Radios

OCEAN LETTER

56. An Ocean Letter is a message sent direct from one ship to another ship passing in the opposite direction for delivery by post from a port of call of the receiving ship.

The service indication for an Ocean Letter is = OL =.

Ocean Letters must be written in plain language; any language declared as plain language under the International Telegraph Regulations is permissible.

Such messages must bear a full postal address. Registered telegraph addresses are not permitted.

Every word in the address, text and signature is counted for the purpose of charge.

Current rates of charge are issued by the controlling private enterprises authorised to use this service.

POSTE RADIO

57. A Poste Radio is a message sent direct from one ship to another ship steaming in any direction for delivery by post from a port of call of the receiving ship.

The normal rate for a Poste Radio comprises the notified ship charges (per word) for radiotelegraph transmission and reception between the ship of origin and the receiving ship, plus the necessary fee for postage by ordinary post or by airmail, as the case may be, from the receiving ship's port of call to the required destination.

The service indication for a Poste Radio for delivery by ordinary mail is = Poste =; if for delivery by air mail = PAV =, the indicator letters being counted and charged as one word.

(a) the indicator = Poste = or = PAV =;

(b) the name of the posting port;

- (c) name and address of the addressee;
- (d) name of the posting ship.

EXAMPLE: = POSTE = SOUTHAMPTON J. BROWN 123
WASBURN STREET DOVER MAURETANIA

RESTRICTIONS

Ocean Letters and Poste Radios for delivery in the United Kingdom and Irish Republic from crews of ships on their personal affairs are permitted from United Kingdom ships whose controlling companies have been authorised by the Home Office to use this service, subject to the condition that such traffic must not be handled within 250 miles of a United Kingdom or Irish Republic coast station. Masters' service messages on ships' business are not admitted.

Ocean Letters and Poste Radios from passengers for destinations abroad are permitted for countries which admit such services, subject to the conditions that such traffic must not be exchanged within 250 miles of a United Kingdom or Irish Republic coast station.

Ocean Letters and Poste Radios from passengers for delivery in the United Kingdom and Irish Republic are prohibited no matter where posted, either at home or abroad; they may not be sent to foreign ships for posting in this or any other country for delivery in the United Kingdom or Irish Republic.

The retransmission of Ocean Letters and Poste Radios is prohibited.

Retransmission of Radiotelegrams

ROUTINE RETRANSMISSION

58. (1) When a coast station cannot reach the ship station for which a radiotelegram is destined, the coast station may, in order to forward the radiotelegram to its destination, have recourse to the help of another ship station provided that the latter consents. The radiotelegram is then transmitted to this other ship station. The help of the latter is given free of charge.

The same provision is also applicable to traffic from ship stations to coast stations when necessary.

The station assisting in the free retransmission must enter the service abbreviation QSP via . . . (followed by the name of the ship station) at the end of the preamble of the radiotelegram.

In order that a radiotelegram thus forwarded may be considered as having reached its destination, the station which has made use of this indirect route must have obtained the regular acknowledgment of receipt, either direct or by an indirect route,

from the ship station for which the radiotelegram was destined or from the coast station to which it was to be forwarded, as the case may be.

RETRANSMISSION BY A COAST STATION

(2) When a single coast station is used as an intermediary between ship stations, only one coast station charge is collected. If the coast station charge applicable to traffic with the ship station of origin is different from that applicable to traffic with the ship station of destination, the higher of these two charges is collected. In addition, a land telegraph charge may be collected equal to that applicable to transmission over the telecommunication network.

When, at the request of the sender, two coast stations are used as intermediaries between two ship stations, the coast station charge of each station is collected and also the telegraph charge for the section between the two stations.

Correction of, or Enquiry Concerning Radiotelegrams

59. The **sender** of a radiotelegram or his authorised representative may have instructions given respecting it by telegraph. Any message exchanged between two stations at the request of the sender must be in the form of a paid service advice. The text of the paid service advice conveying the request is charged for at the ordinary rate and, if a reply by telegraph is required, the service indication = RPx = must be used and a charge for a reply of seven words must be collected.

Any request for the correction of a radiotelegram should be sent, so far as practicable, to the coast station to which the message was transmitted.

Corrections should be drawn up as follows:

(a) **CORRECTION OF TEXT**

Form to be used when the sender of a radiotelegram from a ship discovers that he has made an error in the original radiotelegram:

NON SUCH 6 9 16 1015 =

ST DEWSBURY =

2/15th SMITH REPLACE THIRD 20 by 2000
(chargeable as nine words).

In this example "6" denotes the local serial number of the ST advice, "9" the number of words, "16" the day of the month on which the service is sent, "1015" the time of

handing-in, "2" the serial number of the original radiotelegram, 15th its date, "Smith" the name of the addressee, and "third" the position in the text of the original message of the word which the sender desires to correct, and similarly in the other examples which follow.

(b) **CORRECTION OF ADDRESS**

Form to be used when the sender wishes to correct or complete the address of an undelivered radiotelegram from a ship:

NON SUCH 7 7 16 1015 =

ST DEWS BURY =

2/15th SMITH DELIVER 36 YORKSTREET

(chargeable as seven words).

(2) The **addressee** of a radiotelegram may, with the object of rectifying errors, have it repeated in whole or in part. Repetition is obtained from the office of origin whenever practicable; when this cannot be done, repetition is given by the coast station from its records. Messages exchanged between two stations at the request of the addressee are regarded as ordinary service advices. No charge is made for this service through United Kingdom coast stations.

Similar requests made through the coast stations of other countries may be subject to a charge.

Cancellation of Radiotelegrams

60. A radiotelegram may be cancelled by the sender after it has been accepted for transmission.

If the transmission of the radiotelegram to the next office or station has been completed, the sender may request its cancellation only by means of a paid service advice (ST) addressed to the office of testination. This paid service advice is charged at the ordinary rate for the address text and the indication = RPx = and, in addition, there is a charge as for seven words at the ordinary rate for the reply.

EXAMPLE:

NON SUCH 8 6 16 1015 =

ST RPx DEWS BURY =

2/15th SMITH CANCEL

(Total charge as for thirteen words, i.e. six words for the service advice and seven words for the prepaid reply.)

If the radiotelegram has been delivered the addressee will be informed of the cancellation unless instructions to the contrary have been included in the paid service advice.

EXAMPLE OF REPLY:

DEWSBURY 4 5 16 1230 =

RST NONSUCH =

8/16th SMITH CANCELLED

or

DEWSBURY 4 8 16 1230 =

RST NONSUCH =

8/16th SMITH ALREADY DELIVERED

ADDRESSEE INFORMED

(8 is the serial number of the original paid service advice.)

Undelivered Radiotelegrams

61. When, for any reason, a radiotelegram originating in a ship station and destined for a place on land cannot be delivered to the addressee, an advice of non-delivery is addressed to the coast station which received the radiotelegram. After checking the address, the coast station forwards the advice, when possible, to the ship station, if necessary, by way of another coast station of the same country or of a neighbouring country, as far as existing conditions or special agreements permit.

On receiving a notice of non-delivery from a coast station, the ship station operator should compare the address quoted in the notice with that on the form handed in by the sender and, if possible, correct any errors by means of a service advice transmitted by way of the original coast station or another coast station of the same or a neighbouring country, in so far as existing conditions or special agreements permit. Should no error be disclosed the sender is informed of the non-delivery of his message and the reason. A sender desiring to alter or add to the address of a radiotelegram can only do so by means of a paid service advice (see Section 59).

When a radiotelegram received at a ship station cannot be delivered, that station informs the office or ship station of origin by a service advice. In the case of a radiotelegram originating on land, this service advice is sent, whenever possible, to the coast station through which the radiotelegram passed or, if necessary, to another coast station of the same country or of a neighbouring country, so far as existing conditions or special agreements permit. In such cases the name or call sign of the station from which the radiotelegram was received must be quoted.

Difficulty is occasionally experienced in tracing relative radiotelegram forms owing to inadequate particulars being furnished when non-delivery advices are sent through United Kingdom coast stations.

Ships' operators are reminded that:

- (a) non-delivery advices, whether passed direct to coast stations or through intermediate ships, should contain in the text the full particulars given in Section 62;
- (b) a separate service message should be sent for each un-delivered radiotelegram.

The date given in the particulars of the non-delivery advice should always be that on which the radiotelegram was handed in and not that on which it was received from the coast station or intermediate ship.

Service Advices

62. The preamble of a service advice consists of the name of the ship, the serial number, the number of words and the date and time of handing in. The address includes the relevant service indication and the name of the office of destination.

In the text of a service advice exchanged between a ship and a coast station the radiotelegram to which it relates is designated by (i) its serial number (location or international); (ii) the date on which it was handed in; and (iii) the name of the addressee (together with the full address in cases of non-delivery). Then follows the communication.

Specimen Service Advices

63. (1) Ship station advises office of origin of non-delivery of radiotelegram:

NONSUCH 15 9 23 1100 =

A WREXHAM =

**14/22nd WILLIAMS . . . (insert name of ship) ADDRESSEE
NOT ON BOARD.**

Here "Nonsuch" is the name of the ship; 15 the local serial number of the service advice; 9 the number of words; 23 the day of the month on which the service advice is sent; 1100 the time of handing in; "A" the service indication; "Wrexham" the office for which the service advice is intended; 14 the local serial number of the original radiotelegram; 22nd the day of the month on which the original radiotelegram was handed in; "Williams" the name of the addressee; "addressee not on board" the reason for non-delivery.

Other common reasons for non-delivery on board ship are usually indicated as follows:

addressee no longer on board; addressee unknown; refused.

(See (4) below for the procedure of the coast station in forwarding this service advice to its destination.)

(2) Coast station, having been advised by office of destination of non-delivery of radiotelegram from a ship, transmits this advice to ship station:

WREXHAM 29 9 11 1230 =

A NONSUCH =

15/10th JONES 58 SOUTH-ST WREXHAM
ADDRESSEE UNKNOWN.

Other common reasons for non-delivery are usually indicated as follows:

addressee left; addressee deceased; addressee not arrived; address not registered; address no longer registered; refused.

(3) Ship station, having received advice of non-delivery, informs the office of origin of the service advice of a discrepancy in the address:

NONSUCH 5 10 11 1630 =

A WREXHAM =

15/10th DELIVER TO 38 SOUTH-ST WREXHAM
REPEAT 38.

This indicates that there has been an error in the number, and the word (or group of words or figures) in which the error occurred is repeated, the word "repeat" being prefixed. If the error had been, e.g., the substitution of Street for Place, the text of the foregoing service advice would have read: "15/10th deliver to 58 SOUTH PLACE WREXHAM REPEAT PLACE".

(4) A coast station, in forwarding to the office of destination a service advice received from a ship, should translate it into the form usual in inland service messages, the original radiotelegram being designated not by its number in the radiotelegraphic transmission but by the time of handing-in at the office of origin in the inland telegraph system. Similarly, the ordinary inland form of service message should be used by the coast station in informing the office of origin that the ship for which a radiotelegram was intended has passed out of range, or has not signalled its presence. The phrases to be used in these cases are "ship out of range" and "ship not signalled" respectively.

If necessary, the service message forwarded by the coast station will be translated into French at a later stage.

French Equivalents of Common Expressions

64. A United Kingdom ship or coast station, in sending a service message to a station which does not habitually communicate in English, should use French terms in the text so far as possible. French equivalents of some of the commonest words and phrases are given below:

ENGLISH	FRENCH
Addressee	Destinataire
Unknown	Inconnu
Left	Parti
Not on board	Pas à bord
No longer on board	Plus à bord
Deceased	Décédé
Address	Adresse
Not registered	Pas enregistrée
No longer registered	Plus enregistrée
Refused	Refusé
For	Pour
Repeat	Répétez
Already	Déjà
Delivered	Remis
Deliver	Remettez
Cancel	Annulez
Replace	Remplacez
Read	Lisez
Reply paid	Réponse payée
Radiotelegram to be repeated	Collationnement
Posted as a registered letter	Poste recommandée
Charge for portage prepaid	Exprès payé
Radiotelegram to be called for at a Telegraph Office	Telegraphe Restant
Radiotelegram to be called for at a Post Office	Poste Restante
Radiotelegram to be given priority (as "Urgent")	Urgent

PART 4—CHARGES, REIMBURSEMENTS AND ACCOUNTING FOR RADIOTELEGRAMS

Components of Charges

65. (1) The charge for a radiotelegram must in every case be prepaid by the sender. The same rate of charge applies whether the radiotelegram is written in plain language, secret language, or a combination of both.

(2) For a radiotelegram exchanged between a ship and a telegraph office on land the charge comprises:

- the ship station charge;
- the coast station charge;
- the land-line charge;
- the special charges, if any, mentioned in Part 3.

The coast station charge, the ship station charge and the land-line charge are fixed on the basis of a word rate; for each full-rate radiotelegram, however, a minimum charge for seven words is made.*

(3) The charge for a radiotelegram exchanged between two ships consists of:

If sent via coast stations:

- the ship charge of the ship of origin;
- one coast station charge for each coast station;
- the ship station charge of the ship of destination;
- the land-line charge;
- the special charges, if any, mentioned in Part 3.

When a single coast station is employed as an intermediary between ship stations, and the coast station charge applicable to traffic with the ship station of origin is different from that applicable to traffic with the ship station of destination, the higher of these two charges is collected.

If sent direct (i.e. not via a coast station): the charges at (a), (c) and (e) apply.

Coast and Ship Station Charges

66. The coast station charge may be ascertained from the List of Coast Stations; the ship station charge from the List of Ship Stations.

*Current national and international discussions could lead to alternative systems of charging.

Charges for Press Radiotelegrams

67. The charges for press radiotelegrams are as follows:

(a) Ordinary press radiotelegrams:

Ship station charge: one-half of the ship station charge for an ordinary radiotelegram;

Coast station charge: one-half of the coast station charge for an ordinary radiotelegram;

Land-line charge: (i) one-half of the telegraph charge for an ordinary radiotelegram if either transmitted solely over the European system or to a destination in the country of the coast station; (ii) one-third of the telegraph charge for an ordinary radiotelegram in other cases.

(b) Urgent press radiotelegrams:

Ship station charge: one-half of the ship station charge for an ordinary radiotelegram;

Coast station charge: one-half of the coast station charge for an ordinary radiotelegram;

Land-line charge: the same as the telegraph charge for an ordinary radiotelegram over the same route.

(c) The minimum number of chargeable words for press radiotelegrams is fourteen.

Charges for Ordinary Telegraph Transmission

68. Ship stations are required to carry the telegraph tariffs of the countries for which they most frequently accept radiotelegrams (see Appendix 7). The List of Coast Stations includes for certain countries details of the inland rates and rates of transmission to adjacent countries.

Where the ship's operator has not the means of calculating the charge for a radiotelegram, he may apply to the coast station for information, the enquiry and reply being recorded on service message forms.

No new rate and no modification, either general or of detail, relative to the tariff shall be effective for countries other than those which establish the new rate or rate modification until fifteen days after its notification by the Secretary General, excluding the day of despatch, and it shall not be applied until the first of the month following the expiration of this period.

If there are several notifications, the date of the first only is to be considered in reckoning the interval.

The interval of fifteen days shall be reduced to ten days for modifications intended to equalise rates with those already notified for competing routes.

Receipts

69. A receipt for the charges prepaid may be given on demand, free of charge.

Accounts

70. The method of accounting for charges is arranged between the Home Office and the Licensee or the private enterprise operating each coast or ship station licensed by him.

Conditions under which Reimbursement may be Claimed

71. The charges for radiotelegrams incorrectly transmitted, unduly delayed, or not delivered to the addressee, will be refunded, wholly or in part, under certain conditions. The following are the principal cases in which reimbursement may be claimed:

- (a) When a radiotelegram has failed to reach its destination through some error on the part of the telegraph or radiotelegraph service, the whole of the amount paid will be refunded.
- (b) When a radiotelegram is delayed through the fault of the telegraph service, the whole of the charge will be refunded if delivery to the addressee is not made until after a period of:
 - (i) six hours in the case of a telegram exchanged between two countries within the same continental system which are connected by a direct telegraph circuit;
 - (ii) twelve hours in the case of a telegram exchanged between two other countries within the same continental system but which are not connected by a direct telegraph circuit;
 - (iii) twelve hours in the case of a telegram exchanged between two countries which are not within the same continental system but which are connected by a direct telegraph circuit;
 - (iv) twenty-four hours in all other cases.

The time during which offices are closed, when that is the cause of delay, the time of night if the radiotelegrams

do not bear the service indication = Nuit =* or if they bear the service indication = Jour =,* the time taken for transmission over the radio circuits, and also the period of retention at a coast station, or on board a ship station, shall not be reckoned in the periods indicated above.

Where, however, the delay in any case is the result of an insufficient address or indistinct writing by the sender the telegraph service shall be deemed not to be at fault and no part of the charge will be refunded.

- (c) Unless the error has been remedied by means of a service advice (paid or unpaid), the total charge for a radiotelegram shall be refunded when errors have been made in transmission or by the omission of words regarding which the Administration of origin is satisfied that the meaning of a plain language radiotelegram has been altered, or, rendered unintelligible. However, an error in the transmission of a check word or number shall give a right to reimbursement only if it relates to a radiotelegram with collation (TC).
- (d) Unless the error has been remedied by means of a service advice (paid or unpaid), the charge for a part of the text of a radiotelegram shall be refunded when errors have been made in transmission or by the omission of words regarding which the Administration of origin is satisfied that this part of the text of a collated radiotelegram in secret language or of a radiotelegram in plain language has been unable to fulfil its purpose.

However, an error in the transmission of a check word or a number shall give a right to reimbursement only if it relates to a radiotelegram with collation (TC).

- (e) When a reply paid voucher has not been used the amount paid for the reply will be refunded to the sender provided that the addressee returns the reply paid form to the Telegraph Administration of the country in which it was issued, or to the Company controlling the radio installation on the ship on which it was issued, as the case may be, within a period of four months following the date of issue of the voucher, and accompanied by a request that the money be refunded to the sender.
- (f) If the reply is not of the value of the amount prepaid, the balance of the charges will be refunded to the sender, on

application within four months of the date of issue of the reply form provided that this sum is not less than 27p.

- (g) When the original radiotelegram has not been delivered, the amount deposited for the reply will be refunded to the sender.
- (h) When a special paid service has not been rendered as in the case of a = TC = telegram not repeated, the charge collected in respect thereof will be refunded.
- (i) When a radiotelegram has been cancelled at the station or office of origin before transmission to the next station or office has begun or before such transmission has been completed the charge will be refunded. If the radiotelegram is cancelled after its transmission to the next station or office but before it has reached the ship or office of destination, any balance of charges will be refunded.

Applications for Reimbursement to be Made in Writing

72. The information in Section 71 is given in order that operators may be in a position to advise senders of radiotelegrams who make enquiries or complaints. It is not intended that an operator should himself refund the amount prepaid on a radiotelegram, or any part of it, except in cases where the operator on the ship of origin has not transmitted the radiotelegram.

When a radiotelegram cannot be transmitted by a coast station to the ship of destination, the amount paid by the sender in respect of coast and ship charges will be refunded without application. In all other cases applicants for the return of money should be told to apply in writing to the company responsible for the ship station. They should also be informed that claims for reimbursement should always be accompanied by documentary evidence, viz:

- (a) in the case of non-delivery or delay, by a written statement from the office of destination or the addressee that the radiotelegram has not been received, or has been delayed.
- (b) in the case of error in a plain language radiotelegram, or in the case of the omission of one or more words, by the actual message form delivered to the addressee.

No claim for reimbursement will be entertained unless it is made within four months of the date of the original radiotelegram.

**Reimbursement for Consequential and
Correct Telegrams**

73. The amount paid in respect of radiotelegrams or ordinary telegrams sent in consequence of the non-delivery, delay, or incorrect transmission of a radiotelegram will not normally be returned.

PART 5—RADIOTELEPHONE CALLS

General

74. Radiotelephone services are available between suitably equipped ships and telephone subscribers on shore via coast radio stations. Radiotelephone calls may be extended over the international telephone network to certain countries other than that in which the coast station is situated.

Particulars of the services available are published in Notices to Ship Wireless Stations and in the List of Coast Stations.

The instructions which follow are those which apply in the international telephone service. Particular services may be subject to special restrictions or conditions applied by individual administrations.

The following supplementary services are available if admitted by the administration of the country concerned:

- (a) personal calls;
- (b) collect (transferred charge) calls.

These supplementary services are available in the direction ship station to land station. (All radiotelephone calls TO ship stations are treated as personal calls without extra charge.)

The object of a personal call is to endeavour to guarantee to the caller that he will be put through only if it is possible to establish communication with a person specified by name or in some other way (e.g. with a person speaking a specified language), with an acceptable substitute, or with a particular extension.

A collect (transferred charge) call is a call for which the caller, when booking the call, specifies that he wishes the charge to be paid by the person called. Such calls are admitted only if accepted by the administration of the country concerned and permitted by the operating agency of the ship station.

Priority of Radiotelephone Calls

75. Radiotelephone calls are subject to the priority of communications indicated in Section 20.

Booking of Calls

76. Normally calls are booked by designating the exchange name, or routing code for the incoming network, and the telephone

number. However, booking may include only the name and address of the called person or such information as may be required to identify him.

Period of Validity of Bookings

77. The call booking remains valid until it has been satisfied or refused by the person called, or cancelled by the caller.

Cancellation of Calls

78. (1) A caller may cancel his call booking without charge:

- (a) if he has not yet been advised that the call is about to be set up;
- (b) even if, after having been advised that the call is about to be set up, he is informed that the called number is engaged or cannot be reached.
- (c) if, in the case of a personal call, the called party refuses to accept the call or is not available;
- (d) if, in the case of a collect call, the called party refuses to pay the charge.

PART 6—CHARGES FOR RADIOTELEPHONE CALLS

General

79. (1) The charge for a radiotelephone call originating in, or intended for, a ship station, comprises:

- (a) the ship station charge;
- (b) the coast station charge;
- (c) the land-line charge; and
- (d) the charge for any supplementary service.

If no uniform charges apply in respect of the coast stations of a country, different coast station charges for radiotelephone calls are fixed for the medium frequency, high frequency and the very high frequency bands.

Calls of a duration of three minutes or less are charged as for three minutes. In the case of calls whose duration exceeds three minutes, a charge per minute is made for the period in excess of three minutes, any fraction of a minute being charged as for one minute. The charge per minute is one-third of the charge for three minutes.

The current charges for radiotelephone calls via United Kingdom coast stations are shown in Notices to Ship Wireless Stations.

When a single coast station is used as an intermediary for a radiotelephone call between two ship stations, only one coast station charge is collected. If the coast station charge applicable to traffic with the ship station booking the radiotelephone call is different from that applicable to traffic with the ship station called, the higher of these two charges is collected.

When, at the request of the person booking the radiotelephone call, two coast stations are used as intermediaries for a radiotelephone call between two ship stations, the appropriate coast station charge of each station is collected and also the land-line charge between the two coast stations.

When handled through a coast station the chargeable duration of a radiotelephone call will be fixed at the end of the call by the coast station; if two coast stations are participating in the handling of the call, the duration of the call is fixed by that coast station which has accepted the call from the ship.

The chargeable duration of a radiotelephone call between two ship stations in direct communication with each other will be fixed by the ship station in which the call originates.

When, through any fault of the service, the booking of a radiotelephone call is not followed by the calling and called stations being placed in communication, no charge shall be payable.

When, through any fault of the service, the correspondents experience difficulty in the course of the radiotelephone conversation, the chargeable duration of the call shall be reduced to the total time during which speech conditions have been satisfactory.

SUPPLEMENTARY CHARGES

(2) Unless special arrangements between the administrations or the recognised private operating agencies concerned are in effect, supplementary charges for personal calls (from ship stations to land) and collect calls, if admitted, shall be applied.

In the United Kingdom and in certain European countries the charge for a personal call and a collect call shall be the same as that for an ordinary call of the same duration, with the addition of a supplementary charge equal to two-thirds of the charge for a radiotelephone call of three minutes' duration, between the two stations concerned.

When the booking of a radiotelephone call which is liable to the payment of a supplementary charge (for example, a collect call) is accompanied by a booking of a personal call only one supplementary charge shall be collected.

The current charges for supplementary services via United Kingdom coast stations are published in Notices to Ship Wireless Stations.

Telephone Credit Cards

80. Telephone credit cards may be used when approved by the administration concerned and the operating agency responsible for the ship station. These credit cards enable telephone subscribers, or their accredited agents, to make radiotelephone calls without prepayment.

The code number on the credit card is in a special sequence and the ship station should inform the coast station of this number when booking the call. The coast station will say if the call can be accepted on the card number quoted.

PART 7—RADIOTELEX CALLS

General

80a. A radiotelex service is available between suitably equipped ships and telex subscribers on shore via coast radio stations provided with radiotelex facilities.

Radiotelex calls may be extended over the international telex network to other countries.

Particulars of the services available in the UK, including methods of establishing communication, frequencies to be used and charges for the service are published in current Notices to Ship Wireless Stations.

Radiotelegrams can be exchanged between ship and coast stations using the radiotelex facility with termination at the coast station.

CHAPTER III

Selective Calling in the Maritime Mobile Service

General

81. To meet the immediate needs of the maritime mobile service the characteristics of the sequential single-frequency code (SSFC) system has been adopted internationally.

The selective call identification of a Coast Station will be a group of four digits. For ship stations the selective call number or signal will be a group of five digits.

Method of Calling

82. The call consists of:

- the selective call number or identification number or signal of the station called, followed by;
- the selective call number or identification number or signal of the station calling.

However, in the case of a coast station calling on VHF the number of the channel to be used for the reply and for traffic may replace the identification number or signal of the coast station.

The call shall be transmitted twice.

In the UK Long Range service different coast station identity codes will be used by Portishead Radio to indicate the system on which the ship is required and the degree of importance of the traffic on hand. Particulars are published in the List of Coast Stations and Volume 1 of the Admiralty List of Radio Signals.

Repetition of Call

83. When a station called does not reply, the call should not normally be repeated until after an interval of at least five minutes and should not then normally be renewed until after a further interval of fifteen minutes.

Reply to Calls

84. The reply to calls should be made in accordance with the normal provisions of Sections 89, 91, 97 and 98 when using radio-

telegraphy and Sections 143, 144, 145, and 105-152 when using radiotelephony.

All Ships Call

The use of an "All Ships Call" shall be confined to distress and urgency in the MF and HF bands and the announcement of vital navigational warnings in those bands; additionally it may be used for safety purposes in the VHF band. This call may only be used to supplement, if required, the distress procedure specified in Sections 125 (a), (b), and 176 and shall in no circumstances be used in place of such procedures, in particular the alarm signals mentioned in Sections 120 and 172.

Frequencies to be used

85. Selective calls should be sent on one or more of the following calling carrier frequencies:

500 kHz.
2182 kHz (to be replaced by 2170.5 kHz not later than 1 April, 1977).
4136.3 kHz.
4434.9 kHz.
6518.6 kHz.
8802.4 kHz.
13182.5 kHz.
17328.5 kHz.
22699.0 kHz.
156.8 MHz.

As from 1 January 1978, the above-indicated carrier frequencies will be replaced by the following carrier frequencies:

500 kHz.
2170.5 kHz (this frequency introduced as above).
4125.0 kHz.
4419.4 kHz.
6521.9 kHz.
8780.9 kHz.
13162.8 kHz.
17294.9 kHz.
22658.0 kHz.
156.8 MHz.

Selective calling on 156.8 MHz should normally be only in the direction coast station to ship or intership. Selective calls from ship to coast stations should whenever possible be sent on other VHF frequencies, as appropriate.

CHAPTER IV

Procedures in the Maritime Mobile Radio Telegraph Service

PART 1—USE OF FREQUENCIES

General

86. Ship stations equipped with radiotelegraph apparatus intended to be used for normal traffic by morse telegraphy must be provided with devices permitting change-over from transmission to reception and vice versa without manual switching. In addition these stations should be able to listen on the reception frequency during the course of periods of transmission.
87. Whenever the class of emission A2 or A2H is mentioned, the type of transmission must, except for selective calling purposes, be telegraphy by on-off keying of the modulated emission, to the exclusion of on-off keying of the modulating audio frequencies only.
88. Stations of the maritime mobile service employing single side-band radiotelegraph transmissions must use upper side-band emissions. The frequencies specified for class A2H emission in the maritime mobile service such as 410, 425, 454, 468, 480, 500, 512 and 8364 kHz must be used as carrier frequencies.

Bands between 405 and 535 kHz

89. (1) Transmitters used in ship stations working in the authorised bands between 405 and 535 kHz must be provided with devices readily permitting a material reduction of power.
All ship stations equipped to work in the authorised bands between 405 and 535 kHz must be able to:
 - (a) send class A2 or A2H emissions and receive class A2 and A2H emissions with a carrier frequency of 500 kHz.
 - (b) send, in addition, class A1 and either A2 or A2H emissions on at least two working frequencies;
 - (c) receive, in addition, class A1, A2 and A2H emissions on all other frequencies necessary for their service.

The provisions of (b) and (c) do not apply to apparatus provided solely for distress, urgency and safety purposes.

(2) All ship stations equipped with narrow-band direct-printing telegraph apparatus to work in the authorised bands between 405 and 535 kHz shall be able to send and receive class F1 emissions on at least two working frequencies.

Narrow-band direct-printing telegraphy is forbidden in the band 490-510 kHz.

Distress

(3) The frequency 500 kHz is the international distress frequency for radiotelegraphy; it is used for this purpose by ship, aircraft and survival craft stations using the bands between 405 and 535 kHz when requesting assistance from the maritime services. (For particulars of this use see Chapter V.)

In addition 500 kHz may be used only:

- (a) for call and reply (including selective calling);
- (b) by coast stations to announce that a traffic list is about to be sent on a working frequency;
- (c) with discretion, for direction-finding outside areas of heavy traffic, and on condition that no interference is caused to signals of distress, urgency and safety.

Apart from the transmissions authorised on 500 kHz all transmissions on the frequencies between 490 and 510 kHz are forbidden.

Any emission capable of causing harmful interference to distress, alarm, urgency or safety signals on 500 kHz is prohibited.

In order to facilitate the reception of distress calls, other transmissions on the frequency 500 kHz shall be reduced to a minimum, and in any case shall not exceed one minute.

Before transmitting on 500 kHz stations, other than those in distress, must listen on this frequency for a reasonable period to make sure that no distress traffic is being sent.

CALL AND REPLY

(4) The general calling frequency, which must be used by ship and coast stations using the bands between 405 and 535 kHz and by aircraft stations wishing to communicate with stations of the maritime mobile service using frequencies in these bands, is the frequency 500 kHz.

Selective calling may be carried out on the frequency of 500 kHz in the shore-to-ship, ship-to-shore and ship-to-ship directions.

A ship station calling a coast station must, whenever possible, and particularly in regions of heavy traffic, indicate to the coast station that it is ready to receive on the working frequency of that station. The ship station should make sure beforehand that this frequency is not already being used by the coast station.

The frequency for replying to a call sent on the general calling frequency is either 500 kHz or the frequency specified by the calling station.

In regions of heavy traffic, coast stations may answer calls made by ship stations of their own nationality in accordance with special arrangements made by the administration concerned.

For call and reply during periods of distress working on 500 kHz, see (5) below.

TRAFFIC

(5) Ship stations must use working frequencies chosen from the following: 425, 454, 468, 480 and 512 kHz.

Ship stations should indicate in their call the working frequency they propose to use for the sending of traffic.

When 500 kHz is being used for distress, 512 kHz may be used by ship and coast stations as a supplementary call and reply frequency; coast stations may make use of other arrangements for call and reply which shall be notified in the List of Coast Stations.

When 512 kHz is in use as a supplementary call and reply frequency, it must not be used as a working frequency by ship stations in that area.

In regions of heavy traffic, coast and ship stations should use Class A1 emission on their working frequencies.

SILENCE PERIODS

(6) In order to increase the safety of life at sea and over the sea, all stations of the maritime mobile service normally keeping watch on frequencies in the authorised bands between 405 and 535 kHz shall, during their hours of service, take the necessary measures to ensure watch on the international distress frequency 500 kHz for three minutes twice an hour beginning at x h 15 and x h 45 Greenwich Mean Time (G.M.T.) by an operator using headphones or a loud-speaker.

During these periods, except for the transmission of distress, urgency and safety signals provided for in Chapter V:

(a) transmissions shall cease in the bands between 485 and 515 kHz;

(b) outside these bands, transmissions of stations of the mobile service may continue; stations of the maritime mobile service may listen to these transmissions on the express condition that they first ensure watch on the distress frequency.

NORMAL WATCH

(7) Stations of the maritime mobile service open to public correspondence and using frequencies in the authorised bands between 405 and 535 kHz shall, during their hours of service, remain on watch on 500 kHz. This watch is obligatory only for class A2 and A2H emissions.

These stations, while observing the requirements for the silence periods, are authorised to relinquish this watch only when they are engaged in communications on other frequencies.

When they are engaged in such communications:

- Ship stations may maintain this watch on 500 kHz by means of an operator using headphones or a loud-speaker or by some appropriate means such as an automatic alarm receiver.
- Coast stations may maintain this watch on 500 kHz by means of an operator using headphones or a loud-speaker (in the latter case an indication may be inserted in the List of Coast Stations).

Bands between 1605 and 4000 kHz

90. (1) All ship stations equipped with narrow-band direct-printing telegraph apparatus to work in the authorised bands between 1605 and 4000 kHz shall be able to send and receive class F1 emissions on at least two working frequencies.

Narrow-band direct-printing telegraphy is forbidden in the band 2170–2194 kHz.

(2) A limited radiotelegraphy service is conducted between suitably equipped small craft and United Kingdom coast stations in the band between 1605 and 1625 kHz.

Particulars of this service are published in Notices to Ship Wireless Stations.

Bands between 4000 and 27500 kHz

91. (1) In ship stations, all apparatus using class A1 emissions on frequencies in the authorised bands between 4000 and 27500 kHz must satisfy the following conditions:

(a) in each of the bands necessary to carry on the station's service it shall have at least two calling frequencies and preferably not less than two working frequencies. One of the calling frequencies in each band shall be within one of the common coast station receiving channels contained in Appendix 15C of the ITU Radio Regulations, and another in each band should be selected from within the other channels in Appendix 15C taking account of the receiving channel or channels of the coast station with which the ship station most frequently communicates.

Exceptionally ship stations whose transmitters are capable of using only three frequencies in each band may use a single calling frequency in each band if a minimum of two working frequencies is necessary for the ship service;

(b) changes of frequency in transmitting apparatus shall be effected as quickly as practicable, but within fifteen seconds in any event;

(c) in the matter of frequency changing, receiving apparatus shall be capable of a performance equal to that of the transmitting apparatus.

DIVISION OF THE EXCLUSIVE MARITIME FREQUENCY BANDS

(2) Each of the bands reserved for ship radiotelegraph stations, except for the band 25070 to 25110 kHz, is sub-divided into the following categories:

(a) Two bands of frequencies for ship stations using wide-band telegraphy, facsimile and special transmission systems;

(b) a band of frequencies for oceanographic data transmissions;

(c) a band of frequencies (paired) for ship stations using narrow-band direct-printing telegraph and data transmission systems at speeds not exceeding 100 bauds;

(d) a band of frequencies (non-paired) for ship stations using narrow-band direct-printing telegraph and data transmission systems at speeds not exceeding 100 bauds;

(e) a band of A1 morse telegraphy calling frequencies;

(f) a band of digital selective calling frequencies;

(g) a band of working frequencies for ship stations using A1 morse telegraphy.

The band 25070 to 25110 kHz is divided into three parts, beginning at the low frequency end:

- (a) a band of A1 morse telegraphy calling frequencies;
- (b) a band of frequencies (non-paired) for ship stations using narrow-band direct-printing telegraph and data transmission systems at speeds not exceeding 100 bauds;
- (c) a band of working frequencies for ship stations using A1 morse telegraphy.

An internationally agreed frequency channelling plan is in operation in all the above bands and channels are assigned in accordance with an orderly system of rotation which ensures approximately the same number of assignments on each channel.

Ship stations equipped to operate in the calling and working bands must employ only class A1 morse telegraphy emissions at speeds not exceeding 40 bauds. Survival craft stations may use class A2 or A2H emissions in these bands.

Mobile stations equipped for wide-band telegraphy, facsimile and special transmission systems may, in the frequency bands reserved for such use, employ any class of emission provided that such emissions can be contained within the wide-band channels. However, A1 morse telegraphy and telephony are excluded, except for circuit alignment purposes.

All ship stations equipped with narrow-band direct-printing telegraph apparatus to work in the authorised bands between 4000 and 27500 kHz shall be able to send and receive class F1 emissions on at least two frequencies in each band as required by their service.

CALL AND REPLY

(3) To make a call, a ship station should use one of its assigned calling frequencies. Endeavour should be made to select for calling the band with the most favourable propagation characteristics for effecting reliable communication. In the absence of reliable data, a ship station should listen for the wanted coast station before making the call, and the strength and readability of signals from the coast station will provide a useful guide as to the preferable band for calling.

In order to reduce interference on the common calling channels, they shall be used only when a ship cannot use a calling frequency within the group indicated as a coast station receiving channel of the station with which it desires to communicate or when the coast station has indicated that it is keeping watch only on the common calling channels.

The calling frequency to be used by a coast station, in each of the bands for which it is equipped, is its normal working frequency as shown in the List of Coast Stations.

Unless the calling station specifies otherwise, the frequency for reply to a call made in any band is as follows:

- (a) for a ship station, its appropriate assigned calling frequency in the same band as that used by the calling station;
- (b) for a coast station, its normal working frequency in the same band as that used by the calling station;

Except for communications relating to the safety of life, and search and rescue, the use of frequencies in the ship calling bands for any purpose other than call and reply is forbidden.

TRAFFIC

(4) After establishing communication on a calling frequency a ship station changes to a working frequency for the transmission of traffic.

Ship stations should endeavour to ensure that their assigned working frequencies are given equal use for traffic purposes.

ABBREVIATIONS FOR INDICATING WORKING FREQUENCIES

(5) Abbreviations for indicating working frequencies:

- (a) if the frequency expressed in kHz has no decimal value, the last three figures shall be transmitted;
- (b) if the frequency expressed in kHz has a decimal value, the last three figures before the decimal point and the first decimal figure shall be transmitted.

PART 2—GENERAL PROCEDURE

General

92. The use of the Morse code signals is obligatory in the maritime mobile radiotelegraph service. However, for special types of radiocommunication the use of other signals is not precluded.

A list of abbreviations indicating words and phrases in common use is given in Appendix 2. Only these abbreviations are to be used in the Maritime Mobile Service.

Control of Working

93. The provisions of this Section are not applicable in cases of distress, urgency or safety.

In communication between coast stations and ship stations, the ship station shall comply with the instructions given by the coast station, in all questions relating to the order and time of transmission, to the choice of frequency and class of emission, and to the duration and suspension of work.

In communication between ship stations, the station called controls the working. However, if a coast station finds it necessary to intervene, these stations shall comply with the instructions given by the coast station.

Before transmitting, a station must take precautions to ensure that its emissions will not interfere with transmissions already in progress; if such interference is likely, the station awaits an appropriate break in the communications in progress.

If these precautions having been taken, the emissions of the station should, nevertheless, interfere with a transmission already in progress the following rules shall be applied:

- (a) The ship station whose emission causes interference to the correspondence of a ship station with a coast station, shall cease sending at the first request of the coast station.
- (b) The ship station whose emission causes interference to communications already in progress between ship stations shall cease sending at the first request of one of the other stations.
- (c) The station which requests this cessation shall indicate the approximate waiting time imposed on the station whose emission it suspends.

When a ship station transmits on a working frequency of a coast station and causes interference with the transmission of such coast station, it shall suspend working at the first request of the latter.

Calling Procedure

94. (1) For making the call and for transmitting preparatory signals, the calling station shall use a frequency on which the station called keeps watch.

As a general rule, it rests with the ship station to establish communication with the coast station. For this purpose, the ship station may call the coast station only when it comes within the service area of the latter, that is to say, that area within which, by using an appropriate frequency, the ship station can be heard by the coast station.

However, a coast station having traffic for a ship station may call this station if it has reason to believe that the ship station is keeping watch and is within the service area of the coast station.

METHOD OF CALLING

(2) The call consists of:

- the call sign of the station called, not more than twice;
- the word DE;
- the call sign of the calling station, not more than twice;
- the service abbreviation indicating the working frequency and, if useful, the class of emission which the calling station proposes to use for the transmission of its traffic;
- as appropriate:
 - the service abbreviation to indicate a priority message other than a distress, urgency or safety message and to indicate the reason for the call.
 - the service abbreviation to indicate the calling station wishes to send its radiotelegrams in series.
- the letter K.

REPETITION OF CALLS

95. For normal calling, when the band with the most favourable propagational characteristics has been selected, the call may be transmitted twice at an interval of not less than one minute; thereafter it shall not be repeated until after an interval of three minutes.

General Call to "All Stations"

96. Two types of calling signal to "all stations" are recognised:

- (a) Call CQ followed by the letter K;
- (b) Call CQ not followed by the letter K.

Stations desiring to enter into communication with stations of the mobile service, without knowing the names of any such stations within their service area, may use the enquiry CQ in place of the call sign of the station called in the calling formula, the call being followed by the letter K (general call to all stations in the mobile service with request for reply).

In the maritime mobile service, in regions where traffic is congested, the use of the call CQ followed by the letter K is forbidden. As an exception it may be used with signals denoting urgency.

The call CQ not followed by the letter K (general call to all stations without request for reply) is used before the transmission of information of any kind intended to be read or used by anyone who can intercept it.

The call CP followed by two or more call signs or by a code word (call to certain receiving stations without request for reply) is used only for the transmission of information of any nature intended to be read or used by the persons authorised.

Procedure for Replying to Calls

97. (1) Except as otherwise provided, for transmitting the reply to calls and to preparatory signals, the station called uses the frequency on which the calling station keeps watch, unless the calling station has specified a frequency for the reply.

REPLY TO A CALL

(2) The reply to a call consists of:

- the call sign of the calling station, not more than twice;
- the word DE;
- the call sign of the station called, once only.

AGREEMENT ON THE FREQUENCY TO BE USED FOR TRAFFIC

(3) If the station called is in agreement with the calling station it transmits:

- the reply to the call;
- the service abbreviation indicating that from that moment onwards it will listen on the working frequency announced by the calling station;

- any other necessary indications;
- the letter K if the station called is ready to receive the traffic from the calling station.

If the station called is not in agreement with the calling station it transmits:

- the reply to the call;
- the service abbreviation indicating the working frequency to be used by the calling station.

When agreement is reached regarding the working frequency to be used by the calling station, the called station indicates its readiness to receive traffic from the calling station.

REPLY TO REQUEST FOR TRANSMISSION BY SERIES

(4) The station called, in replying to a calling station which has proposed to transmit its radiotelegrams by series (see Section 94) shall indicate, by means of the service abbreviation, its acceptance or refusal. In the former case it shall specify, if necessary, the number of radiotelegrams it is ready to receive in one series.

DIFFICULTIES IN RECEPTION

(5) If the station called is unable to accept traffic immediately, it will make the reply to the call followed by the signal - - - - - (wait), and a number indicating in minutes the probable duration of the waiting time thus: ABCD (up to three times) DE XYZ QTC2 - - - - - 5 - - - - - (meaning "I have two radiotelegrams to transmit to you, wait five minutes"); or, if other ships are waiting, it may indicate a numbered turn by using the service abbreviation QRY followed by the number of the turn.

If the probable duration exceeds ten minutes (five minutes in communications between aircraft and maritime mobile stations), the reason for the delay should be given.

When a station receives a call without being certain that such a call is intended for it, it must not reply until the call has been repeated and understood. When, on the other hand, a station receives a call which is intended for it but is uncertain of the call sign of the calling station, it must reply immediately using the service abbreviation QRZ? in place of the call sign of this latter station.

When a coast station receives calls from several mobile stations at practically the same time it decides the order in which these stations may transmit their traffic. Its decision shall be based on the priority (see Section 20) of the radiotelegrams, radiotelephone calls and radiotelex calls that mobile stations have on hand and

on the need for allowing each calling station to clear the greatest possible number of communications.

Example of Call, Reply and Transfer to Working Frequencies

98. A ship, whose call sign is ABCD, wishes to transmit four radiotelegrams on the working frequency 425 kHz to a coast station whose call is XYZ and wishes to know how many radiotelegrams it can send at a time. After ascertaining that the station is not engaged, the ship signals on the calling frequency 500 kHz:

XYZ (not more than twice) DE ABCD (not more than twice) QSW 425 QTC 4 K.

The coast station XYZ, which is ready to receive traffic on 425 kHz and to transfer to its own working frequency 482 kHz, replies:

ABCD (not more than twice) DE XYZ QSY 425 QSW 482 K.

The ship changes to its working frequency 425 kHz and signals:

XYZ (not more than twice) DE ABCD QSG ? K.

The coast station replies on 482 kHz:

ABCD (not more than twice) DE XYZ QSG (1, 2, 3 or 4) K.

If the ship ABCD is in a heavy traffic region and is aware that the normal working frequency of coast station XYZ is 482 kHz it should make the initial call on the calling frequency 500 kHz as follows:

XYZ (not more than twice) DE ABCD (not more than twice) QSW 425 QTC4 QSX 482 K.

The coast station replies on 482 kHz as follows:

ABCD (not more than twice) DE XYZ QSY 425 K.

The ship changes to its working frequency 425 kHz and signals:

XYZ (not more than twice) DE ABCD QSG ? K.

The coast station replies:

ABCD DE XYZ QSG (1, 2, 3 or 4) K.

Coast Station Traffic Lists

99. Each coast station, as far as practicable, transmits its call in the form of "traffic lists" consisting of the call signs in alphabetical order of all mobile stations for which it has traffic on hand. These calls shall be made at specified times at intervals of not less than two hours and not more than four hours during the working hours of the coast station.

In the bands between 4000 and 27500 kHz, however, traffic lists may be transmitted at intervals of not less than one hour.

Coast stations transmit their traffic lists on their normal working frequencies in the appropriate bands. This transmission must be preceded by a general call to all stations (CQ).

The call to all stations announcing the traffic list may be sent on a calling frequency in the following form:

- CQ, not more than three times;
- the word DE;
- the call sign of the calling station, not more than three times;
- QSW followed by the indication of the working frequency or frequencies upon which the traffic list is about to be sent.

In no case may this preamble be repeated.

The above provisions are obligatory when 500 kHz is used.

The hours at which coast stations transmit their traffic lists, and the frequencies and classes of emission which they use for this purpose are published in the List of Coast Stations and Notices to Ship Wireless Stations.

Ship stations should, as far as possible, listen to the traffic lists transmitted by coast stations. On hearing their call sign in such a list they must reply as soon as they can do so.

When the traffic cannot be sent immediately, the coast station must inform each ship station concerned of the probable time at which working can begin, and also, if necessary, the frequency and class of emission which will be used.

Signal for End of Work

100. The end of work between two stations is indicated by each station signalling - - - - - (end of work).

This signal is also used when the transmission of radiotelegrams of general information, meteorological information and general safety notices is finished and when transmission is ended in a long distance radiocommunication service with deferred acknowledgment of receipt or without acknowledgment of receipt.

Failure to Establish Communication with a United Kingdom Coast Station

101. When a ship station passes within the service area of a United Kingdom coast station and is prevented for any reason from communicating with that station, it is the responsibility of the ship station to secure the redirection of any traffic held for the

ship by that coast station, through the first United Kingdom coast station with which communication is established.

Information to be Furnished by a Ship Station (TR)

102. A coast station may, by means of the abbreviation TR, ask a ship station to furnish it with information concerning its position and voyage.

The TR comprises:

- the name of the ship;
- the approximate distance, in nautical miles, and bearing of the ship from the coast station or a known geographical location; or the position in latitude and longitude;
- the course and speed, if available;
- the next port of call.

**EXAMPLE: GLD DE GBTT TR QUEEN ELIZABETH 2
100 WEST BISHOPS ROCK SOUTHAMPTON AR.**

The information, preceded by the abbreviation TR, should be furnished by the ship station without prior request from the coast station whenever such a measure seems appropriate. The provision of this information is furnished only on the authority of the master or person responsible for the ship.

This information is required by coast stations for the proper circulation of traffic; instructions have been given that a TR should be obtained by coast stations in the United Kingdom and the Irish Republic from every ship which communicates with them. In order to avoid unnecessary signalling a United Kingdom ship, upon establishing communication with one of these coast stations, is requested to furnish a TR without waiting for the coast station to ask for it.

Fishing Vessels should report their position to the nearest coast station:

- (a) on leaving and arriving in port;
- (b) on passing from the area of one coast station to another.

In the absence of any formal position reporting systems, fishing vessels should also report:

- (c) on arrival at the fishing grounds;
- (d) after proceeding a distance of 50 miles or more to another position within the fishing grounds or any other change of intention.

Failure of the radio equipment on board a fishing vessel should be reported, together with the position and proposed movements,

to the owners or their representatives ashore by requesting any vessel within visual contact range to pass the report through the nearest coast station.

Closure of Service on Ship Stations

103. (1) Ship stations whose service is not continuous shall not close before:

- (a) finishing all operations resulting from a distress call, urgency or safety signal;
- (b) exchanging, so far as practicable, all traffic originating in or destined for coast stations situated within their service area and for other ship stations which, being within their service area, have indicated their presence before the actual cessation of work.

Any ship station not having fixed working hours shall inform the coast stations with which it is in communication of the time of closing and the time of re-opening its service.

ARRIVAL IN, AND DEPARTURE FROM, PORT

(2) Any ship station arriving at an intermediate or terminal port, and whose service is about to close, shall:

- (a) notify accordingly the nearest coast station and, if appropriate, the other coast stations with which it generally communicates;
- (b) not close until after the disposal of traffic on hand, unless this conflicts with the regulations in force in the country of the port of call.

Ship station operators must advise the coast stations concerned during their last watchkeeping period before docking that they expect to enter port before the next watchkeeping period begins, irrespective of whether the period of non-watchkeeping extends to two hours only or to ten hours as in the case of the break between 2200 and 0800 next day.

Upon departure from port the ship station must notify the coast stations concerned that its service is re-opening as soon as such re-opening is permitted by the regulations in force in the country of the port of departure. However, a ship station not having fixed hours of service may defer such notification until the station first re-opens its service after departure from port.

Failure to notify the appropriate station or stations could lead to unnecessary enquiries with consequent delay to traffic.

Transmission of Test Signals

104. When it is necessary for a ship station to send signals for testing or adjustment which are liable to interfere with the working of neighbouring coast stations, the consent of these stations must be obtained before such signals are sent.

Test signals, either for the adjustment of a transmitter before making a call or for the adjustment of a receiver, shall not be continued for more than ten seconds and shall be composed of a series of VVV followed by the call sign of the station emitting the test signals.

The operator should always listen on the appropriate frequency before testing in order to guard against interfering with any transmission which might be in progress.

To avoid irregular radiation of distress signals when testing automatic distress keying equipment the following precautions should be observed:

- (a) Tests should not be conducted near any aerial or suspended wire which might re-radiate the signal, and all aerials associated with the main and emergency transmitters and receivers should be earthed.
- (b) A dummy aerial should be used on the transmitter under test.
- (c) Wherever possible, the operation of the distress keying equipment should be tested without the transmitter being energised. Where this is not possible the test should be conducted on minimum power and the distress keying equipment momentarily switched in; on no account should this be long enough to allow a complete distress signal to be sent.

As a safeguard, the signal "Test de . . . (call sign of ship)" should be sent before and after all tests.

It is of the utmost importance that radiation tests of portable transmitters for lifeboats should be made only by using the hand signalling key. On no account may tests be made with the switch in either of the distress positions unless the aerial is disconnected.

PART 3—TRANSMISSION OF RADIOTELEGRAMS

Transmission of Radiotelegrams to Coast Stations

105. In routing radiotelegrams, a ship station should, as a general rule, give preference to the coast station established on the territory of the country of destination, or the country likely to provide the most suitable transit route for radiotelegrams.

However, to expedite or facilitate the routing of radiotelegrams to a coast station, a ship station may transmit them to another ship station. The latter shall dispose of such radiotelegrams in the same manner as if they originated with itself. It should include in the preamble of such radiotelegrams an indication that they have been relayed (see Section 58).

A ship station, when using class A2 or A2H emission in the bands between 405 and 535 kHz to transmit radiotelegrams to a coast station which is not the nearest to it, shall cease working or shall change frequency or class of emission upon the first request made by a coast station which is nearer to the ship station than the coast station being worked, when this request is based upon interference which the working of the ship station causes to the nearer coast station.

If the sender of a radiotelegram has indicated the coast station to which he desires his radiotelegram to be sent, the ship station shall, in order to effect this transmission to the coast station indicated, wait, if necessary, until the conditions specified above are fulfilled.

In order to facilitate disposal of traffic, and subject to such restrictions as individual governments may impose, coast stations may, in exceptional circumstances and with discretion, without incurring additional charges, exchange radiotelegrams and service messages relating thereto.

Ships fitted with radiotelephony as well as radiotelegraphy should normally transmit radiotelegrams by radiotelegraphy.

Priority and Order of Work

106. Radiotelegrams must be transmitted in the order of priority given in Section 20.

Radiotelegrams of the same order of priority must be transmitted in the progressive order of their times of handing-in.

In communications between a coast station and a ship station, the coast station decides the order of working and the method of transmitting radiotelegrams, i.e. singly or by series. In the case of communications between two ship stations the decision rests with the station called.

In cases where both stations are able to change from sending to receiving without manual switching, and working conditions permit, it may be mutually agreed by use of the service abbreviation QSK before work commences, that the sending station will continue to transmit until the completion of its traffic, or until the receiving station breaks in on the transmission with the service abbreviation BK.

Numbering in Daily Series

107. Radiotelegrams of all kinds, including paid and unpaid service radiotelegrams, transmitted by ship stations shall be numbered in a separate daily series to each station. Number 1 shall be given to the first radiotelegram sent each day, commencing at 0001 G.M.T., to each separate station.

A series of numbers which has begun in radiotelegraph should be continued in radiotelephony and vice versa.

Preparatory Signals

108. When communication is established between two stations on working frequencies, and working procedures agreed, the transmission of a single radiotelegram or a series, or traffic working under the BK method, is preceded by the following:

- the call sign of the receiving station;
- the word DE;
- the call sign of the sending station.

Operating Signals and Preamble

COMMENCING SIGNAL

109. (1) The transmission of a radiotelegram is preceded by the signal — - - - -

PREAMBLE

(2) The preamble to a radiotelegram consists of the prefix (if any), the name of the ship or office of origin, the serial number, the number of words, the date and time groups and any service instructions such as routing instructions.

THE BREAK SIGN

(3) The break sign (— - - -) is used to separate the preamble from the service instructions, the service instructions from each other, the service indications from the address, the address from the text and the text from the signature.

TERMINATING SIGNAL

(4) The transmission of a radiotelegram is terminated by the signal - - - - -.

Form of Transmission of a Radiotelegram

110. The complete form of transmission of a radiotelegram is as follows:

— - - - - (commencing signal).

Prefix (if any).

Name of ship or origin (office of origin if originating on land).

Serial number of radiotelegram.

Number of words.

Date.

Time of handing-in.

Service instructions (if any).

— - - - - (break sign).

Service indications (if any, and separated by break sign if more than one).

— - - - - (break sign).

Address.

— - - - - (break sign).

Text (if no signature follows, send terminating signal here).

— - - - - (break sign).

Signature (if any).

- - - - - (terminating signal).

EXAMPLE:

— - - - - CANBERRA 5 7 12 2205 — - - - - BROWN 25
NEWSTREET SOUTHAMPTON — - - - - ARRIVE
TOMORROW — - - - - JOHN — - - - -

Figures, or mixed groups of letters, figures or signs in the address, text or signature of a radiotelegram must be repeated at the end of its transmission. Proper names and doubtful words may also be repeated as considered necessary. In Government radiotelegrams in plain language, proper names and doubtful words must be repeated.

This repetition may be preceded by the abbreviation COL (collate) and must be ended with the terminating signal (- - - - -).

Upon completion of the transmission of a single radiotelegram, or of the last in a series, the terminating signal should be followed by the letter K, inviting the receiving station to acknowledge receipt.

Long Radiotelegrams

111. Long radiotelegrams, whether in plain language or in secret language, are normally regarded as the equivalent of a series of radiotelegrams. When employing the BK method of working (see Section 106) the transmitting station may continue to send until the completion of the radiotelegram, or until the receiving station breaks in by transmitting the abbreviation BK.

If this method of working is not employed, long radiotelegrams should, as a general rule, be transmitted in sections of fifty words in the case of plain language and twenty words or groups in the case of secret language. At the end of each section, the signal - - - - - (?), meaning, "Have you received the radiotelegram correctly up to this point?" should be transmitted. If the section has been correctly received the receiving station transmits the letter K and the transmission of the next section proceeds.

Any necessary repetitions should be given at the end of each section.

Acknowledgment of Receipt

112. The acknowledgment of receipt of a radiotelegram or a series of radiotelegrams is given by the receiving station in the following manner:

- the call sign of the sending station;
- the word DE;
- the call sign of the receiving station;
- the letter R followed by the number of the radiotelegram;
- or
- the letter R followed by the number of the last radiotelegram of a series.

Government radiotelegrams written wholly or partly in secret language must be repeated (collated) by the receiving station; acknowledgment of receipt should not be given until confirmation is received from the transmitting station that the repetition has been checked with its copy of the radiotelegram and found correct. No charge is levied for this repetition.

Procedure when Communication Becomes Difficult

113. In the mobile service, when communication becomes difficult, the two stations in communication make every effort to complete the radiotelegram in course of transmission. The receiving station may request not more than two repetitions of a radiotelegram of which the reception is doubtful. If this triple transmission is ineffective, the radiotelegram is kept on hand in case a favourable opportunity for completing its transmission occurs.

If the transmitting station considers that it will not be possible to re-establish communication with the receiving station within twenty-four hours, it proceeds as follows:

- (a) **If the transmitting station is a ship station**, it immediately informs the sender of the reason for the non-transmission of his radiotelegram. The sender may then request:
 - (i) that the radiotelegram be transmitted through another coast station;
 - or
 - (ii) that the radiotelegram be held until it can be transmitted without additional charge; or
 - (iii) that the radiotelegram be cancelled.
- (b) **If the transmitting station is a coast station** it applies the provisions of Section 55.

When a ship station subsequently transmits a radiotelegram thus held to the coast station which incompletely received it, this new transmission must bear the service instruction "ampliation" in the preamble of the radiotelegram. If the radiotelegram is transmitted to another coast station subject to the same administration or the same private enterprise, the new transmission must bear the service instruction "ampliation via . . ." (insert here the call sign of the coast station to which the radiotelegram was transmitted in the first instance) and the administration or private enterprise in question may claim only the charges relating to a single transmission. The "other coast station" which thus forwards the radiotelegram may claim from the ship of origin any additional charges resulting from the

transmission of the radiotelegram over the general communication network between itself and the office of destination.

When the coast station designated in the address as the station by which the radiotelegram is to be forwarded cannot reach the ship of destination, and has reason to believe that such ship station is within reach of another coast station of the administration or private enterprise to which it is itself subject, it may, if no additional charge is incurred thereby, forward the radiotelegram to this other coast station.

A station of the mobile service which has received a radiotelegram and has been unable to acknowledge its receipt in the usual way, must take the first favourable opportunity to give such acknowledgment.

When the acknowledgment of receipt of a radiotelegram transmitted between a ship station and a coast station cannot be given direct, it is forwarded through another ship or coast station by service advice if the latter is able to communicate with the station which has transmitted the radiotelegram in question. In any case no additional charge must result.

Administrations reserve the right to organise a long-distance radiocommunication service between coast stations and ship stations, with deferred acknowledgment of receipt, or without any acknowledgment of receipt. When there is doubt about the accuracy of any part of a radiotelegram transmitted under either of these systems, the indication "doubtful reception" is entered on the copy delivered to the addressee and the doubtful words or groups of words are underlined. If the words are missing, blanks are left in the places where these words should be.

Identification of Ships Bearing the Same Name

114. When, because of duplication of names, the name of a ship is followed by its call sign, the latter should be separated from the name of the station by a fraction bar.

EXAMPLE: ORIANA/GVSN (not ORIANAGVSN).

Preamble for Inland Transmission from Coast Station

115. When a coast station sends over the inland telecommunication network a radiotelegram received from a ship station, it inserts the name of the coast station and the name of the last ship which acted as intermediary (should any retransmission have occurred).

In order to avoid any confusion with a telegraph office or a fixed station of the same name, the coast station may, if desirable, complete the indication of the name of the ship of origin by the word "ship" placed before the name of the station of origin.

Accounting Particulars to be Supplied to Coast Stations

116. When the name and address of the administration or private operating agency controlling a ship station are not given in the appropriate list of stations or are no longer in agreement with the particulars given therein, it is the duty of the ship station to furnish as a matter of regular procedure, to the coast station to which it transmits traffic, all the necessary information in this respect.

Long Distance Ship-Shore Communication

117. Particulars of this service are published in the List of Coast Stations and Volume 1 of the Admiralty List of Radio Signals.

CHAPTER V

Distress, Urgency, and Safety Communications by Radiotelegraphy

General

118. In the maritime mobile service distress communications by radiotelegraphy should be conducted in accordance with the following procedures. However, nothing in these procedures prevents:

- (a) a ship in distress from making use of any means at its disposal to attract attention, make known its position and obtain help.
- (b) ships engaged in search and rescue operations, in exceptional circumstances, from making use of any means at their disposal to assist a ship in distress.

The distress call and the distress message shall be sent only on the authority of the master or person responsible for the ship.

The speed of transmission in cases of distress, urgency and safety shall not in general exceed sixteen words a minute.

In distress communications extreme care should be exercised by all stations taking part to ensure that their transmissions do not cause harmful interference to the other stations engaged, especially to the transmissions of the station actually in distress.

Distress Frequency

119. The frequency 500 kHz is the international distress frequency for radiotelegraphy; it shall be used for this purpose by ship, aircraft and survival craft stations using frequencies in the bands between 405 and 535 kHz when requesting assistance from the maritime services. It shall be used for the distress call and distress traffic, for the urgency signal and urgency messages, and for the safety signal and, outside regions of heavy traffic, short safety messages. When practicable, safety messages should be transmitted on a working frequency after a preliminary announcement on 500 kHz.

However, ship and aircraft stations which cannot transmit on 500 kHz should use any other available frequency on which attention might be attracted.

Alarm Signals

120. (1) RADIOTELEGRAPH ALARM SIGNAL

The radiotelegraph alarm signal consists of a series of twelve dashes sent in one minute, the duration of each dash being four seconds and the duration of the interval between two consecutive dashes being one second. It may be transmitted by hand but its transmission by means of an automatic instrument is recommended.

Any ship station working in the band 405 to 535 kHz which is not provided with an automatic apparatus for the transmission of the alarm signal, shall be permanently equipped with a clock, clearly marking the seconds, preferably by means of a sweep hand completing one revolution per minute. This clock must be placed at a point sufficiently visible from the operator's table in order that the operator may, by keeping it in view, easily and correctly time the different elements of the alarm signal.

The purpose of this special signal is to actuate automatic devices giving an alarm to attract the attention of the operator when there is no listening watch on the distress frequency.

It must be used only:

- (a) to announce that a distress call or message is about to follow;
- (b) by a duly authorised coast station to announce the transmission of an urgent cyclone warning, which should be preceded by the safety signal.
- (c) to announce the loss of a person or persons overboard when the assistance of other ships is required and cannot be obtained satisfactorily by the use of the urgency signal only.

In the case described in (c), the alarm signal must not be repeated by other stations and the message which follows must be preceded by the urgency signal (see Section 132).

In cases (b) and (c) an interval of two minutes should, if possible, separate the end of the radiotelegraph signal and the beginning of the warning or the message.

(2) ALL SHIPS CALL SIGNAL (Selective Calling System)

The "All Ships Call" signal, which is reserved for alarm purposes only, consists of a continuous sequential transmission of eleven audio frequencies. The purpose of this special signal is to actuate receiving selectors on all ships regardless of individual code numbers.

The use of the "All Ships Call" is confined to distress and urgency in the MF and HF bands and the announcement of vital navigational warnings in those bands; additionally it may be used for safety purposes in the VHF band. This call may only be used to supplement, if required, the distress procedure specified in 125(a) and (b), and shall in no circumstances be used in place of such procedures, in particular the alarm signal mentioned in 120(1).

Distress Signal

121. In radiotelegraphy the distress signal consists of the group
 - - - - - (symbolised by SOS) transmitted as a single signal in which the dashes are emphasised so as to be distinguished clearly from the dots.

This signal indicates that a ship, aircraft or other vehicle is threatened by grave and imminent danger and requests immediate assistance.

Distress Call

122. The distress call sent by radiotelegraphy consists of:
 —the distress signal SOS sent three times;
 —the word DE;
 —the call sign of the mobile station in distress, sent three times.

The distress call shall have absolute priority over all other transmissions. All stations which hear it shall immediately cease any transmission capable of interfering with the distress traffic and shall continue to listen on the frequency used for the emission of the distress call. This call shall not be addressed to a particular station and acknowledgment of receipt shall not be given before the distress message which follows it is sent.

Distress Message

123. The radiotelegraph distress message consists of:
 —the distress SOS;
 —the name, or other identification, of the mobile station in distress;
 —particulars of its position;
 —the nature of the distress and the kind of assistance desired;
 —any other information which might facilitate the rescue.

As a general rule, a ship shall signal its position in latitude and longitude (Greenwich), using figures for the degrees and minutes,

together with one of the words NORTH or SOUTH and one of the words EAST or WEST. The signal - - - - - shall be used to separate the degrees from the minutes.

A ship signalling a position in terms of latitude and longitude should always use a double figure notation for the minutes (and seconds if signalled):

e.g., 49.06.30 North, 04.30.20 West.

When practicable, the true bearing (in three-figure notation) and distance in nautical miles from a known geographical position may be given. If, however, the vessel is in distress on a rock or shoal, or near a headland or other place, a precise geographical indication of the position of the vessel should be given (for instance, "near the Skerries off Holyhead") in order that the place may not be mistaken for another place with the same name or another part of the coast. In the case of a vessel in distress and drifting, the Master should, after indicating his position, state whether his vessel is in the "light" or "loaded" condition and also the probable direction and rate of drift. He should also indicate any subsequent material change in the position or intentions of the vessel in distress.

An aircraft in flight will transmit as much information in its distress message as time permits. As a general rule, the message will contain its estimated position and the time, its heading in degrees stating whether magnetic or true, its indicated air speed and altitude, the type of aircraft, the nature of the distress, the type of assistance desired and any other information such as the intention of the person in command to alight on the sea.

Distress Traffic

124. Distress traffic consists of all messages relating to the immediate assistance required by the mobile station in distress.

In distress traffic, the distress signal shall be sent before the call and at the beginning of the preamble of any radiotelegram.

Distress Call and Message Transmission Procedure

125. The radiotelegraph procedure for the transmission of the distress call and distress message consists of:

- (a) the alarm signal; followed in order by:
- (b) the distress call and an interval of two minutes;
- (c) the distress call;
- (d) the distress message;
- (e) two dashes of ten to fifteen seconds each;
- (f) the call sign of the station in distress.

However, when time is vital, the second step (b), or even the first (a) and second (b) steps, may be omitted or shortened. These two steps in the distress procedure may also be omitted in circumstances where the transmission of the alarm signal is considered unnecessary.

The distress call followed by the distress message shall be repeated at intervals, especially in the silence periods prescribed in Section 89, until an answer is received. However, the intervals shall be sufficiently long to allow time for stations preparing to reply to start their sending apparatus.

The alarm signal may also be repeated if necessary.

The transmissions under (e) and (f) are to permit direction-finding stations to determine the position of the vessel in distress and may be repeated at frequent intervals, if necessary.

When the vessel in distress receives no answer to a distress message sent on 500 kHz, the message may be repeated on any other available frequency upon which attention might be attracted.

Before total abandonment of a ship, or an aircraft, or immediately before a forced or crash landing (on land or sea) of an aircraft, the radio apparatus should be set for continuous emission, if considered necessary and circumstances permit.

Acknowledgment of Receipt of a Distress Message

126. The acknowledgment of receipt of a distress message shall be given in the following form:

- the distress signal SOS;
- the call sign of the station sending the distress message, sent three times;
- the word DE;
- the call sign of the station acknowledging receipt, sent three times;
- the group RRR;
- the distress signal SOS.

Obligation to Acknowledge Receipt of a Distress Message

127. Stations of the mobile service which receive a distress message from a mobile station which is, beyond any possible doubt,

- (a) **in their vicinity**, must immediately acknowledge receipt; in areas where reliable communication with a coast station is practicable, ships should defer acknowledgment for a short interval to permit the coast station to acknowledge receipt;

(b) **not in their vicinity**, must acknowledge receipt after the elapse of a short interval to permit stations nearer to the mobile station in distress to acknowledge receipt without interference. However, a station in the maritime mobile service which has received a distress message from a mobile station which, beyond any possible doubt, is a long distance away need not acknowledge receipt of messages except when, although not in a position to render assistance, it has heard a distress message which has not been acknowledged.

Every ship station acknowledging receipt of a distress message shall, upon the order of the master or person responsible for the ship, transmit as soon as possible the following information in the order shown:

- its name;
- its position;
- the speed at which it is proceeding towards, and the approximate time it will take to reach, the mobile station in distress;
- additionally, if the position of the ship in distress appears doubtful, ship stations should also transmit, when available, the true bearing of the ship in distress preceded by the abbreviation QTE (for classification of bearings, see Appendix 8).

Before transmitting this message the station must assure that it will not interfere with the emissions of other stations better situated to render assistance to the station in distress.

When a mobile station has heard a distress message which has not been acknowledged, but is not itself in a position to render assistance, it must take all possible steps to attract the attention of other mobile stations which might be able to do so. For this purpose, with the approval of the master or person responsible for the ship, the distress call and message (and the alarm signal if necessary) may be repeated (see Section 129 for the procedure to be used).

Control of Distress Traffic

128. The control of distress traffic is the responsibility of the mobile station in distress, or of the station sending the distress message under the conditions outlined in Section 129. However, this control may be delegated to another station, e.g. to a coast station.

The station in distress or the station controlling distress traffic may impose silence either on all stations of the mobile

service in the area or on any station which interferes with the distress traffic. It shall address this instruction to "CQ" (all stations) or to one station only, according to circumstances, followed by the signal "QRT SOS". This signal is reserved solely for the use of the station in distress and the station controlling the distress traffic.

If it believes it essential to do so, any other station of the mobile service near the station in distress may also impose silence. For this purpose the signal "QRT DISTRESS" shall be used followed by the call sign of the station making the transmission, but great care must be taken not to interfere further with distress communications already in progress.

Any station of the mobile service which has knowledge of distress traffic and cannot itself assist the station in distress shall nevertheless follow such traffic until it is evident that assistance is being provided.

Until the message indicating that normal or restricted working may be resumed is received (see below), all stations which are aware of the distress traffic, and which are not taking part in it, are forbidden to transmit on the frequencies on which distress traffic is taking place.

A station of the mobile service which, while following distress traffic, is able to continue its normal service, may do so when the distress traffic is well established and on condition that it observes the provisions of the preceding paragraph and does not interfere with the distress traffic.

In cases of exceptional importance only, and provided that no interference or delay is caused to the handling of distress traffic, the transmission of urgency or safety messages on a working frequency may be announced, preferably by coast stations, on the distress frequency during a lull in the distress traffic. In these cases the signals provided for in Section 132 and 133 should be sent once only (e.g. XXX DE ABC QSW).

When complete silence is no longer considered necessary on a frequency which is being used for distress traffic, the station controlling the traffic shall transmit on that frequency a message addressed to "CQ" (all stations) in the following form indicating that restricted working may be resumed:

- the distress signal SOS;
- the call CQ, sent three times;
- the word DE;
- the call sign of the station sending the message;

- the time of handing-in of the message;
- the name and call sign of the mobile station which is in distress;
- the service abbreviation QUZ.

When distress traffic has completely ceased on a frequency which has been used for distress traffic, the station which has controlled the distress traffic shall transmit on that frequency a message to "CQ" (all stations) in the following form indicating that normal working may be resumed:

- the distress signal SOS;
- the call CQ, sent three times;
- the word DE;
- the call sign of the station sending the message;
- the time of handing-in of the message;
- the name and call sign of the mobile station which was in distress;
- the service abbreviation QUM.

When a station in distress has delegated control of distress working to another station, the person in charge of the station in distress should, when he considers silence no longer justified, immediately inform the controlling station, which will then advise "CQ" (all stations) that normal or restricted working may be resumed.

Transmission of a Distress Message by a Station not Itself in Distress

129. A mobile station, or a coast station, which learns that a mobile station is in distress, shall transmit a distress message in any of the following cases:

- (a) when the station in distress is not itself in a position to transmit the distress message;
- (b) when the master or person responsible for the ship or aircraft not in distress, or the person responsible for the coast station, considers that further help is necessary;
- (c) when, although not in a position to render assistance, it has heard a distress message which has not been acknowledged.

In order that direction-finding stations shall not be misled or confused in locating a mobile station in distress, any distress

message transmitted by a station which is not itself in distress, must always be preceded by the following call:

- the signal **DDD SOS SOS SOS DDD**;
- the word **DE**;
- the call sign of the transmitting station, sent three times.

This call shall be preceded by the alarm signal, followed by a two minute interval when necessary.

When a distress message is transmitted under the conditions of (c) above, the station making the transmission shall take all necessary steps to notify the authorities who may be able to render assistance.

A ship station should not acknowledge receipt of a distress message transmitted by a coast station under the conditions mentioned above until the master or person responsible has confirmed that the ship station concerned is in a position to render assistance.

Misuse of Distress Signal

130. Except in the case of distress the transmission of the distress signal is absolutely prohibited.

Difficulty has been caused by the use of the distress signal by ships which, though not in imminent danger, have utilised it for the purpose of obtaining tugs or other assistance.

The distress signal is provided for use in case of imminent danger when immediate aid is necessary. Its use for less urgent purposes might result in insufficient attention being paid to calls from ships really in immediate need of assistance.

Where the transmission of the distress signal is not fully justified, use should be made of the urgency signal (XXX) (see Section 132). This signal has priority over all other communications except distress, and should be quite sufficient for the purposes of obtaining the assistance of tugs, etc.

131. Emergency Position-indicating Radio beacon Signals (see Section 184).

Urgency Signal

132. The radiotelegraph urgency signal shall be sent by a ship station only on the authority of the master or person responsible for the ship, and by a coast station only with the approval of the responsible authority.

The urgency signal consists of three repetitions of the group XXX, sent with the letters of each group and the successive

groups clearly separated from each other. It shall be transmitted before the call.

The urgency signal indicates that the calling station has a very urgent message to transmit concerning the safety of a ship, aircraft or other vehicle, or the safety of a person. However, the message shall be transmitted on a working frequency:

- (a) in the case of a long message or a medical call, or
- (b) in areas of heavy traffic in the case of the repetition of such a message.

An indication to this effect should be given at the end of the call.

The urgency signal has priority over all other communications, except distress. All stations which hear it shall take care not to interfere with the transmission of the message which follows it.

As a general rule, messages preceded by the urgency signal should be drawn up in plain language. They may be addressed to one station in particular or to "CQ" (all stations). If addressed to "CQ" the station responsible for its transmission must cancel it by a similarly addressed message as soon as it knows that action is no longer necessary.

Ship stations which hear the urgency signal must continue to listen for at least three minutes. At the end of this period, if no urgency message has been heard, a land station should, if possible, be notified of the receipt of the urgency signal. Thereafter normal working may be resumed. Coast and ship stations which are in communication on frequencies other than the one used for the transmission of the urgency signal may continue their normal service provided that the call which follows the urgency signal is not addressed to "CQ".

Safety Signal

133. The radiotelegraph safety signal consists of three repetitions of the group TTT, the individual letters of each group, and the successive groups being clearly separated from each other. It is sent before the call.

The safety signal indicates that the calling station is about to transmit a message containing an important navigational or important meteorological warning.

The safety signal and call should be sent on the international distress frequency of 500 kHz but may be sent on any other designated frequency for distress. The safety message which follows should be sent on a working frequency, particularly in areas of heavy traffic, and a suitable announcement to this effect must be made at the end of the call.

Safety messages are generally addressed to "all Stations" (CQ). In some cases, however, they may be addressed to a particular station.

With the exception of messages transmitted at fixed times, the safety signal should be transmitted towards the end of the first available silence period and the message transmitted immediately after the silence period (see Section 89).

Meteorological and navigational warning messages must be transmitted upon receipt, and repeated as just indicated at the end of the first silence period which follows.

All stations hearing the safety signal must listen to the safety message until they are satisfied that it is of no concern to them. They shall not make any transmission likely to interfere with the message.

CHAPTER VI

Procedures in the Maritime Mobile Radiotelephone Service

PART 1—GENERAL PROVISIONS

Chapter I of this Handbook deals with the general regulations and conditions to be observed by stations of the maritime mobile service. The operational efficiency and quality of the maritime radiotelephone service, no less than the radiotelegraph service, depends largely upon their strict observance. Attention is specially drawn to the following provisions.

Licence

134. Under the Wireless Telegraphy Acts, 1949 to 1967, a licence granted by the Secretary of State for the Home Department is necessary before any radio apparatus is installed or used on board ship (see Section 1).

Secrecy

135. All persons concerned must preserve the secrecy of correspondence. The interception of communications other than those which the station is licensed to receive, is forbidden. If such communications are received involuntarily they must not be reproduced in writing, communicated to other persons or used for any purpose whatsoever (see Section 4).

Identification of Stations

136. Coast stations normally identify themselves by using their geographical names generally followed by the word "Radio", or they may use an international call sign.

United Kingdom coast stations use their geographical names followed by the word "Radio", e.g. Humber Radio.

Ship stations should normally identify themselves by the name of the ship, preceded when necessary, to avoid confusion with another ship of the same name, by the name of the owner. The international call sign assigned to the ship may be used in certain cases. The use of fishing registration numbers, christian

names and other unauthorised identifications is strictly forbidden (see also Section 24).

Transmissions by ships without identification or with false identification, as well as the transmission or circulation of false or deceptive distress, urgency or safety messages, are strictly prohibited (see Section 6).

Operators' Certificates of Competency

137. The radiotelephone installation of ships taking part in the maritime radiotelephone services, in the bands between 1605 and 4000 kHz in the exclusive maritime bands between 4 and 23 MHz and in the international maritime bands between 156 and 162 MHz must be under the control of an operator holding an appropriate certificate of competency, and an authority to operate issued by the Secretary of State for the Home Department. Provided that the installation is under the control of such a qualified operator, other persons may use the radiotelephone service (see Section 25).

Documents to be Carried

138. The documents to be carried by ship stations are shown in Appendix 7.

Control of Communications

139. Except in the case of distress, coast stations control the communications in their particular areas. In order that traffic may be exchanged efficiently, all instructions given by coast stations should be complied with at once. Ship stations must not interfere with the working of coast stations.

In the case of distress, the vessel in distress controls communications unless it hands over control to another station, e.g. to a coast station (see Section 181).

Unauthorised Transmissions and Broadcast Transmissions

140. The attention of operators is called to the terms of the ship radio licence which permit a vessel whilst at sea to communicate by radio only with other ships at sea and with aircraft stations and coast stations. A ship station in harbour may not communicate with other ship stations but only with coast stations, subject to the provisions of Section 15. Except in the case of emergency involving safety, the use of the transmitting equipment for any other purpose is strictly forbidden.

Messages must not be transmitted to an address on shore except through a coast station. The broadcasting of messages intended for reception at addresses on shore is strictly forbidden.

Operators are also reminded that it is forbidden (a) to exchange unnecessary signals of any kind, (b) to use the installation for other than public correspondence and communications on the business of the ship, (c) to use offensive language.

Use of the ship station except in accordance with the licence is an offence under the Wireless Telegraphy Acts, 1949 to 1967, and may result in the revocation of the licence, or in the institution of legal proceedings, or in both. It may also lead to the suspension with a view to revocation of the operator's authority to operate a radio station on board ship.

PART 2—USE OF FREQUENCIES

General

141. The changeover from the use of the double sideband to the use of the single sideband mode of operation is scheduled to be completed by:

- 1 January 1978 in the maritime mobile bands between 4000 and 23000 kHz;
- 1 January 1982 in the maritime mobile bands between 1605 and 4000 kHz.

During the transition period arrangements have been made in both bands to ensure that ships fitted with either double sideband or single sideband radiotelephone equipment will be able to maintain full safety and public correspondence services. Details of the necessary changes affecting United Kingdom services will be published in Notices to Ship Wireless Stations and in the List of Coast Stations; those in respect of the services of other administrations will be notified in the List of Coast Stations.

The smoothness of the transition will depend largely on the strict observance of the conditions laid down in these publications.

142. The frequencies for use by United Kingdom coast and ship stations are shown in Notices to Ship Wireless Stations; coast station frequencies are also shown in the List of Coast Stations.

A ship may use only those frequencies which are shown on the ship licence; the use of any other frequency is strictly forbidden.

It is important that frequencies are used only for the purpose for which they are shown in the Notices to Ship Wireless Stations, e.g. a frequency shown as for use by ships for communicating only with coast stations must not be used for communicating with other ships.

Frequencies on which single sideband emissions are sent are designated by the carrier frequency, even if it is suppressed at the transmitter, as in the A3J mode of operation.

Bands between 1605 and 4000 kHz

GENERAL PROVISIONS

143. (1) All ship stations equipped with radiotelephony apparatus to work in the authorised bands between 1625 and 2850 kHz must be able to:

- (a) send Class A3 or A3H emissions with a carrier frequency of 2182 kHz and receive Class A3 and A3H emissions on a carrier frequency of 2182 kHz;
- (b) send, in addition, class:
 - (i) A3 or
 - (ii) A3H, A3A and A3Jemissions on at least two working frequencies;
- (c) receive, in addition, class:
 - (i) A3 and A3H or
 - (ii) A3, A3H, A3A and A3Jemissions on all other frequencies necessary for their service.

The provisions of (b) and (c) do not apply to apparatus provided solely for distress, urgency and safety purposes.

Working frequencies for use by ship stations in these bands have been allotted to countries in accordance with a basic international frequency plan. A certain number are assignable to each United Kingdom ship for specific purposes, viz. ship to coast station working, intership working, etc., according to the category of the ship, i.e. fishing vessel, passenger ship and other ships.

Additionally in Region I (roughly the European and African areas), the following frequencies are available for common international use by ships making international voyages:

- (i) ship-shore working frequencies,
 - carrier frequency 2046 kHz (assigned frequency 2047.4 kHz) and carrier frequency 2049 kHz (assigned frequency 2050.4 kHz) for Class A3A and A3J emissions;
 - carrier frequency 2049 kHz also for Class A3 and A3H emissions;
- (ii) intership frequencies,
 - carrier frequency 2053 kHz (assigned frequency 2054.4 kHz) and carrier frequency 2056 kHz (assigned frequency 2057.4 kHz) for Class A3A and A3J emissions;
 - carrier frequency 2056 kHz also for Class A3 and A3H emissions.

These frequencies may also be used as additional ship-shore frequencies.

The frequencies listed in (i) and (ii) must not be used for working between stations of the same nationality.

DISTRESS

(2) The frequency 2182 kHz* is the international distress frequency for radiotelephony. It is used for this purpose by ship, aircraft, survival craft stations and emergency position-indicating radio-beacons using frequencies in the bands between 1605 and 4000 kHz when requesting assistance from the maritime service. For particulars of this use see Chapter VII.

In the zone of Regions 1 and 2 south of latitude 15°N, including Mexico, and in the zone of Region 3 south of latitude 25°N, if a distress message on 2182 kHz has not been acknowledged, the radiotelephone alarm signal, whenever possible followed by the distress call and message, may be transmitted again on 4136.3 kHz† or 6204.0 kHz,† as appropriate.

However, ship and aircraft stations which cannot transmit on 2182 kHz*, 4136.3 kHz† or 6204.0 kHz† should use any other available frequency on which attention might be attracted.

Except for the transmissions authorised on the frequency 2182 kHz* all transmissions on the frequencies between 2173.5 and 2190.5 kHz are forbidden.

Any emission capable of causing harmful interference to distress, alarm, urgency or safety signals on 2182 kHz is prohibited.

In order to increase the safety of life at sea and over the sea, all stations of the maritime mobile service normally keeping watch on frequencies in the authorised bands between 1605 and 2850 kHz shall, during their hours of service, and as far as possible, take steps to keep watch on the international distress frequency 2182 kHz for three minutes twice each hour beginning at x h 00 and x h 30 G.M.T.

Selective calling may be used on 2182 kHz in the shore-to-ship, ship-to-shore and ship-to-ship directions and on this frequency shall be confined to distress and urgency and to vital navigational warnings. In no circumstances shall such selective calling be used in place of the radiotelegraph and radiotelephone alarm signal and distress call.

SEARCH AND RESCUE

(3) The frequency 3023.5 kHz may be used for intercommunication between mobile stations engaged in co-ordinated search and rescue operation, including communication between these stations and participating land stations.

*Whatever the class of emission used, the frequency 2182 kHz always designates the carrier frequency of the emission.

†As from 1 January 1978 to be replaced by 4125.0 kHz and 6215.5 kHz respectively.

CALL AND REPLY

(4) The frequency 2182 kHz* may also be used only

- (a) for call and reply;
- (b) by coast stations to announce the transmission, on other frequencies, of traffic lists;
- (c) by coast stations when using selective calling (until 1 April 1977).

To facilitate the reception of distress calls all transmissions on the frequency 2182 kHz must be kept to a minimum.

Before transmitting on 2182 kHz, stations, other than those in distress, should listen on this frequency for a reasonable period to make sure that no distress traffic is being sent.

WATCH

(5) Coast stations which are open to public correspondence and which form an essential part of the coverage of the area for distress purposes maintain a listening watch on 2182 kHz during their hours of service.

United Kingdom coast stations keep a continuous watch on 2182 kHz and also keep watch on 2381 kHz from 9 a.m. to 5 p.m. local time Monday to Saturday (see (7)).

Ship stations should keep the maximum practicable watch on 2182 kHz (especially during the periods of silence mentioned above) for the reception of the radiotelephone alarm signal and the navigational warning signal as well as distress, urgency and safety signals. During their hours of public correspondence service they should as far as possible listen for calls on 2182 kHz.

FREQUENCIES TO BE USED FOR CALL AND REPLY IN THE PUBLIC CORRESPONDENCE SERVICE

(6) A radiotelephone ship calling a coast station for normal public correspondence traffic should use for the call, in order of preference:

- (a) a working or national calling frequency on which the coast station is keeping watch;
- (b) the frequency 2182 kHz.

(7) Details of the arrangements for calling United Kingdom coast stations, and for calling foreign coast stations and other ships, are as follows:

*Whatever the class of emission used, the frequency 2182 kHz always designates the carrier frequency of the emission.

(a) **Ships to United Kingdom Coast Stations.** During the hours indicated in the List of Coast Stations and in Notices to Ship Wireless Stations ships calling United Kingdom coast stations for normal public correspondence traffic purposes should make the call on 2381 kHz. Outside these hours the call should be made on 2182 kHz unless otherwise indicated.

The coast station will at all times reply on 1792 kHz.

All coast stations will use 2182 kHz to call individual ships for whom they might have traffic on hand between traffic list times.

When contact is established, agreement should be reached for transfer to appropriate working frequencies for the exchange of traffic.

(b) **Ships to Foreign Coast Stations.** Ships should call a foreign coast station as shown in 6(a) and (b). The coast station will reply on 2182 kHz unless the ship indicates that it will listen for the reply on one of the coast station's other frequencies or special answering arrangements are given in the List of Coast Stations.

Normally foreign coast stations will call United Kingdom ships on 2182 kHz and the ship should reply on the same frequency unless another frequency is indicated by the calling station.

When contact is established, agreement should be reached for transfer to working frequencies for the exchange of traffic.

(c) **Ship Station to Ship Station.** A ship station should normally call another ship station on 2182 kHz and the ship station called should reply on the same frequency unless reply on another frequency is indicated by the calling ship station. Upon establishing contact transfer should be made to working frequencies for the exchange of traffic. However, in areas of high traffic density (such as around the coasts of the United Kingdom and in the North Sea) every effort should be made by ships to use an intership frequency for the call and reply when prior arrangements to do so can be made.

TRANSMISSION OF PUBLIC CORRESPONDENCE TRAFFIC

(8) Every station of the maritime mobile service should transmit its traffic (radiotelephone calls, radiotelegrams, etc.) on one of its working frequencies in the band in which the call has been made.

The use of the international calling frequency, 2182 kHz, is forbidden for traffic except distress traffic.

(a) **Ships to United Kingdom Coast Stations.** When communication is established, the ship station must transfer from 2381 kHz or 2182 kHz as the case may be, to a working frequency for the exchange of traffic. To facilitate this, the ship station, when offering traffic to or answering a call from a United Kingdom coast station, should indicate which working channels it has available. (See example in Section 152.)

The coast station will then indicate the working frequency it will use and the working channel to be used by the ship station. Thereafter each station will listen for the exchange of traffic on the working frequencies agreed.

(b) **Ships to Foreign Coast Stations.** When communication is established the ship station must transfer to a working frequency for the exchange of traffic.

The coast station will indicate the working frequency it proposes to use and the ship station will indicate its agreement.

The ship station may offer:

- (a) one of the international ship to shore working frequencies
 - (i) 2049 kHz for Class A3 or A3H emission;
 - (ii) —carrier frequency 2046 kHz (assigned frequency 2047.4 kHz);
 - carrier frequency 2049 kHz (assigned frequency 2050.4 kHz);
- (b) the international intership/ship-to-shore frequencies
 - (i) 2056 kHz for Class A3 or A3H emission;
 - (ii) —carrier frequency 2053 kHz (assigned frequency 2054.4 kHz);
 - carrier frequency 2056 kHz (assigned frequency 2057.4 kHz);
- (c) a frequency that has been specially agreed between the United Kingdom and the administration concerned for working to the coast stations of a particular country;
- (d) one of its normal national working frequencies.

When the frequency to be used is agreed by the coast station, each station from then onwards listens on the working frequency for the exchange of traffic.

Bands between 4000 and 23000 kHz**GENERAL**

144. (1) In the exclusive maritime mobile radiotelephone bands between 4000 and 23000 kHz, frequencies have been provided for:

- use by ship stations for calling purposes;
- use by coast stations for calling purposes;
- duplex radiotelephony (these frequencies are arranged in internationally agreed pairs);
- use by coast stations and ship stations for radiotelephony on a simplex basis.

Details are given in the Manual for use by the Maritime Mobile Service published by the ITU, Geneva.

In the zone of Regions 1 and 2 south of latitude 15°N, including Mexico, and in the zone of Region 3 south of latitude 25°N, the frequency 4136.3 kHz* is designated to supplement the frequency 2182 kHz for distress and safety purposes and for call and reply.

In the zone of Region 3 south of latitude 25°N, the frequency 6204.0 kHz† is designated to supplement the frequency 2182 kHz for distress and safety purposes and for call and reply.

Search and Rescue

(2) The frequency 5680 kHz may be used for intercommunication between mobile stations engaged in co-ordinated search and rescue operations, including communication between these stations and participating land stations.

Call, Reply and Traffic

(3) The frequencies to be used in these bands for the establishment of communication and the handling of radiotelephone calls with the coast stations of any particular country, together with the watchkeeping hours maintained by them, are shown in the List of Coast Stations.

In many cases initial contact with coast stations may be established by radiotelegraphy, in the bands appropriate for that

*As from 1 January 1978 to be replaced by 4125.0 kHz.

†As from 1 January 1978 to be replaced by 6215.5 kHz.

system (see Chapter IV), and transfer made direct to radio-telephone working frequencies.

The ship calling frequencies must not be used for traffic purposes.

Bands between 156 and 174 MHz

GENERAL

145. (1) In the bands between 156 and 174 MHz international provision is made for maritime public correspondence, port operation and ship movement services, intership working and for communications between ship or coast stations and helicopters or light aircraft engaged in predominantly maritime support operations.

In addition to radiotelephony, high-speed data and facsimile transmissions and narrow-band direct-printing telegraphy are permitted subject to the conditions of Appendix 18 of the ITU Manual for Use by the Maritime Mobile Service.

Particulars of the frequencies in use at each station, and the purposes for which they may be used, are published in the List of Coast Stations. Particulars of the services available at United Kingdom coast stations are also shown in the Notices to Ship Wireless Stations and notices regarding port operation services are issued by port authorities.

All ship stations equipped with radiotelephony to operate in these services in the authorised bands between 156 and 174 MHz must be able to send and receive Class F3 emissions on:

- (a) the distress, safety and calling frequency 156.80 MHz (Channel 16);
- (b) the primary intership frequency 156.30 MHz (Channel 6);
- (c) all the frequencies necessary for their service.

The frequency channels available for these services are, by international agreement, designated by numbers, and, as far as possible, these designations should be used, e.g. 156.80 MHz is "Channel 16" and 156.30 MHz is "Channel 6".

The frequency 156.80 MHz is the international distress, safety and calling frequency for radiotelephony for stations of the maritime mobile service when using frequencies in the authorised bands between 156 and 174 MHz. It is used for the distress signal and call and distress traffic, for the urgency signal, urgency traffic and the safety signal. Safety messages shall be transmitted where practicable on a working frequency after a preliminary announcement on 156.80 MHz. However, ship stations which

cannot transmit on 156.80 MHz should use any other available frequency on which attention might be attracted.

The frequency 156.80 MHz may also be used:

- (a) by coast and ship stations for call and reply;
- (b) by coast stations to announce the transmission on another frequency of traffic lists and important maritime information;
- (c) by coast and ship stations for selective calling.

WATCH

(2) Coast stations conducting public correspondence radiotelephone services and coast stations in the port operation and ship movement services normally keep permanent watch on 156.80 MHz (Channel 16) during their hours of service.

Ship stations should, where practicable, maintain watch on 156.80 MHz (Channel 16) when within the service areas of these stations. Ship stations fitted only with VHF radiotelephone equipment operating in the authorised bands between 156 MHz and 174 MHz should maintain watch on 156.80 MHz when at sea.

Ship stations, when in communication with a port station may, on an exceptional basis and subject to the agreement of the administration concerned, continue to maintain watch on the appropriate port operations frequency only, provided that watch on 156.80 MHz is being maintained by the port station.

Ship stations, when in communication with a coast station in the ship movement service and subject to the agreement of the administrations concerned, may continue to maintain watch on the appropriate ship movement service frequency only, provided the watch on 156.80 MHz is being maintained by that coast station.

Public Correspondence Service

(3) As a general rule, coast stations use 156.80 MHz (Channel 16) for calling and the reply is made on the same frequency. However, coast station to ship calling may be conducted on a working channel or on a two-frequency calling channel.

Except for distress, urgency or safety communications, when 156.80 MHz should be used, ship to coast station calling should, whenever possible, be made on a working channel or on a two-frequency calling channel.

Upon establishment of communication on the calling frequency, the calling station should indicate the working channel which it is proposed to use; when this is agreed both stations transfer to their working channels for the exchange of traffic.

Port Operations and Ship Movement Services

(4) In the bands between 156 MHz and 174 MHz coast station to ship calling should, as a general rule, be made on 156.80 MHz. However, coast station to ship calling may be conducted on a working channel. Except for distress, urgency or safety communications, when 156.80 MHz should be used, ship to coast station calling should be made on a port operations or ship movement working frequency indicated in heavy type in the List of Coast Stations.

When making a call to a port operations coast station the ship station should indicate the particular service required (such as navigational information, docking instructions, etc.) and the port operations coast station will indicate the appropriate working channel to be used in the service required.

When contact has been established between a coast station in the ship movement service and a ship station, the coast station will indicate the appropriate working channel to be used for the exchange of traffic.

Intership Working

(5) Contact between ship stations may be established on 156.80 MHz (Channel 16) and transfer made to appropriate intership working channels for the exchange of traffic.

Pilot Service

(6) A radiotelephone ship station calling a station providing pilot service should use for the call, in order of preference:

- (a) an appropriate channel in the bands between 156 and 174 MHz;
- (b) a working frequency in the bands between 1605 and 4000 kHz;
- (c) the frequency 2182 kHz and then only to determine the working frequency to be used.

PART 3—GENERAL PROCEDURE**GENERAL**

146. The procedures outlined in the following sections are generally applicable in all the frequency bands in which maritime radio-telephone public correspondence services are available.

147. A list of abbreviations indicating words and phrases in common use is given in Appendix 2. Only these abbreviations are to be used in the maritime mobile service.

Control of Working

148. Except in the case of distress, urgency or safety, communications between a ship and a coast station are controlled by the coast station. Ship stations must comply with instructions given by the coast station in all questions relating to the order and time of transmission, the frequencies to be used, and the duration and suspension of working.

In communications between ship stations the ship station called controls the working, but if a coast station finds it necessary to intervene in this working both ship stations must comply with any instruction given by the coast station.

Before transmitting, a station should first listen to make sure that its emissions will not interfere with any communications already in progress; if such interference is likely, the station should await an appropriate break in those communications.

However, if after these precautions have been taken the emission does cause interference, the station causing the interference must comply with any request to suspend its transmission from the station controlling the communications in progress. The request should contain an indication of the duration of the suspension time imposed.

Apart from distress, urgency or safety communications, calling and signals preparatory to the exchange of traffic must not exceed one minute when using 2182 kHz or 156.8 MHz.

Calling Procedure

149. For making the call, the calling station must use a frequency on which the station called keeps watch.

As a general rule, it rests with the ship station to call and establish communication with a coast station. However, a coast

station having traffic for a ship station may call that station if it has reason to believe that the ship is within its service area and is keeping watch.

(See also Section 153.)

The call consists of:

- the name or other identification of the stations called, not more than three times;
- the words THIS IS (or DE spoken as DELTA ECHO in case of language difficulties);
- the name or other identification of the calling station, not more than three times.

However, in the bands between 156 and 174 MHz when the conditions for establishing contact are good, the call described above may be replaced by:

- the call sign of the station called, once;
- the words THIS IS (or DE spoken as DELTA ECHO in the case of language difficulties);
- the call sign or other identification of the calling station, twice.

When contact is established, the name or other identification may thereafter be transmitted once only.

When a station called does not reply, the call may be repeated at three-minute intervals. However, before renewing the call, the calling station must first ascertain that further calling is unlikely to cause interference to other communications in progress and that the station called is not in communication with another station.

In areas where reliable VHF communication with a called coast station is practicable, the calling ship station may repeat the call as soon as it is ascertained that traffic has been terminated at the coast station.

The provisions relating to the intervals between calls are not applicable to a station in the maritime mobile service operating under conditions involving distress, urgency or safety.

In the bands between 1605 and 4000 kHz when a United Kingdom coast station cannot answer calls because it is already engaged in traffic working, it makes an announcement to this effect on the appropriate answering frequency (see Section 143). A ship station hearing such an announcement must cease calling that coast station and must not renew the calling until invited to do so by the coast station, or until it becomes evident that the coast station is no longer engaged in traffic working. It may,

however, call any other United Kingdom coast station known to be within its range and free to answer calls.

The call should be followed by an indication of the working frequency channel it is proposed to use for the exchange of traffic and whether more than one radiotelegram or radio-telephone call is to be transmitted.

When a coast station receives calls from several ship stations at practically the same time it will decide the order in which they may conduct working. Its decision will be based on the priority of the traffic to be cleared and the need to clear the greatest possible amount of traffic from each ship.

Ship stations must not radiate a carrier wave between calls.

Procedure for Replying to Calls

150. For transmitting the reply to a call, the station called uses the frequency upon which the calling station keeps watch, unless the calling station has specified another frequency for the reply.

The reply to a call consists of:

- the name or other identification of the calling station, not more than three times;
- the words THIS IS (or DE spoken as DELTA ECHO in case of language difficulties);
- the name or other identification of the station called, not more than three times.

If the station called is unable to accept traffic immediately, it should reply to the call as indicated above, followed by the words "WAIT MINUTES", or, if other ships are waiting, "YOUR TURN IS NUMBER". If the probable duration of the waiting time exceeds ten minutes the reason for the delay should be given.

When the called station is ready for working it will call in the form shown in Section 149 and the calling station will reply as shown above.

When a station receives a call without being certain that it is intended for it, it must not reply until the call has been repeated and understood.

When a station receives a call which is intended for it, but is uncertain of the identification of the calling station, it replies as follows:

- “STATION CALLING” (insert name or other identification of the called station), not more than three times;

- the words THIS IS (or DE spoken as DELTA ECHO in case of language difficulties);
- the name or other identification of the station called;
- “REPEAT YOUR CALL—OVER”.

Agreement on the Frequency Channel to be Used for Working

151. If the station called is in agreement with the working channel proposed by the calling station (see Section 149) it transmits:

- the reply to the call (see Section 150);
- an indication that from that moment onwards it will listen on the working channel announced by the calling station;
- an indication of the working frequency channel it will itself use;
- any other necessary indication;
- the word “OVER” (inviting the calling station to reply).

If the station called is not in agreement with the working frequency channel proposed, it indicates an alternative working channel for use.

When agreement is reached both stations then continue communications on the working channels.

Example of Call, Reply and Transfer to Working Frequency Channel

52. The ship “KINGSTON JADE” wishes to clear three radiotelegrams (or radiotelephone calls) through Humber Radio.

After ascertaining that it will not interfere with any communications in progress, the ship station signals on the calling frequency:

“HUMBER RADIO (up to three times),
THIS IS,
KINGSTON JADE (up to three times),
I HAVE THREE RADIOTELEGRAMS (or RADIO-
TELEPHONE CALLS) FOR YOU,
CHANNEL 3 OR 6,
OVER”.

The coast station is ready to receive traffic on Channel 3 and to use its working frequency 2684 kHz, replies:

“KINGSTON JADE (up to three times), THIS IS
HUMBER RADIO, CHANNEL 3, LISTEN 2684 kHz,
OVER”.

The ship now transfers to Channel 3 (2104 kHz) and the coast station to 2684 kHz.

The ship replies on Channel 3:

"HUMBER RADIO, THIS IS KINGSTON JADE,
HOW ARE YOU RECEIVING ME, OVER".

The coast station replies:

"KINGSTON JADE, THIS IS HUMBER RADIO,
RECEIVING YOU WELL, GO AHEAD WITH YOUR
TRAFFIC, OVER".

The ship replies:

"HUMBER RADIO, THIS IS KINGSTON JADE",
continuing by sending his traffic (or arranging particulars of
radiotelephone calls).

Coast Station Traffic Lists

153. Coast stations normally call ship stations in the form of "Traffic Lists", consisting of the names or other identifications of all ships for which traffic is held by the coast station. These lists are transmitted on the normal working frequency of the station at intervals of not less than two hours; the times and working frequencies for each coast station are shown in Notices to Ship Wireless Stations and in the List of Coast Stations.

These traffic lists are usually preceded by an announcement on the calling frequency in the following form:

- HELLO ALL SHIPS or CQ (spoken as CHARLIE QUEBEC) not more than three times;
- THIS IS (or DE spoken as DELTA ECHO in case of language difficulties);
- RADIO (not more than three times),
- LISTEN FOR MY TRAFFIC LIST ON KHZ.

However, in the bands between 156 and 174 MHz when the conditions for establishing contact are good, the call described above may be replaced by:

- HELLO ALL SHIPS or CQ (spoken as CHARLIE QUEBEC), once;
- THIS IS (or DE spoken as DELTA ECHO in case of language difficulties);
- RADIO (twice);
- LISTEN FOR MY TRAFFIC ON CHANNEL

Ship stations should, as far as possible, listen to the traffic lists transmitted by coast stations, and upon hearing their name or

other identification in such a list must reply to the coast station as soon as they can do so. If the coast station cannot send the traffic immediately it will indicate the turn or the probable waiting time (see Section 150).

Signal for End of Work

154. The end of work between two stations is indicated by each station adding the word "OUT" (or VA spoken as VICTOR ALPHA in case of language difficulties) at the end of its last reply.

Failure to Establish Communication with a United Kingdom Coast Station

155. When a ship station passes within the service area of a United Kingdom coast station and is prevented for any reason from communicating with that station, it is the responsibility of the ship station to secure the redirection of any traffic held for the ship by that coast station, through the first United Kingdom coast station with which communication is established.

Information to be Furnished by a Ship Station (TR)

156. In order to facilitate the routing of traffic, ship stations should furnish coast stations with particulars of their voyages. This information, which is given under the authority of the master or person responsible for the ship, should be prefixed by the abbreviation "TR" (spoken as TANGO ROMEO). The information should be supplied to coast stations in the United Kingdom and the Irish Republic without waiting for a request to do so.

The TR comprises:

- the name of the ship;
- the approximate distance, in nautical miles, and bearing of the ship from the coast station or a known geographical location, or the position in latitude and longitude;
- the next port of call.

Fishing vessels should report their position to the nearest coast station:

- (a) on leaving and arriving in port;
- (b) on passing from the area of one coast station to another.

In the absence of any formal position reporting systems, fishing vessels should also report:

- (c) on arrival at the fishing grounds;
- (d) after proceeding a distance of 50 miles or more to another position within the fishing grounds or any other change of intention.

Failure of the radio equipment on board a fishing vessel should be reported, together with the position and proposed movements, to the owners or their representatives ashore by requesting any vessel within visual contact range to pass the report through the nearest coast station.

Closure of Service on Ship Stations

157. Ship stations whose service is not continuous must not close before:

- (a) finishing all operations resulting from a distress call, urgency of safety signal;
- (b) exchanging, as far as practicable, all traffic originating in or destined for coast stations within their service area, or for other ships known to be within their area.

Arrival in, and Departure from, Port

158. Any ship station arriving at an intermediate or terminal port and about to close its service, must:

- (a) notify accordingly the nearest coast station, and if appropriate, any other coast station with which it generally communicates;
- (b) not close until after the disposal of traffic on hand, unless this conflicts with the regulations in force in the country of the port of call.

Upon departure from port the ship station must notify the coast stations concerned as soon as its service reopens.

Transmission of Test Signals

159. When it is necessary for a ship station to send signals, for testing or adjustments, which are liable to interfere with the working of neighbouring coast stations, the consent of these stations must be obtained before such signals are sent.

Test signals, either for the adjustment of a transmitter before making a call or for the adjustment of a receiver, must not be continued for more than ten seconds, and must include the name or other identification of the station emitting the signals. The name or other identification must be spoken slowly and distinctly.

Any signals sent for testing shall be kept to a minimum, particularly:

- on the carrier frequency 2182 kHz;
- on the frequency 156.80 MHz;
- in the zone of Regions 1 and 2 south of latitude 15°N, including Mexico, and in the zone of Region 3 south of latitude 25°N, on the frequency 4136.3 kHz;*
- in the zone of Region 3 south of latitude 25°N also on the frequency 6204.0 kHz.*

It is not permitted to send tests of the radiotelephone alarm signal on the frequency of 2182 kHz and the frequency 156.80 MHz, except where emergency equipment which can operate only on these frequencies is involved in which case measures shall be taken to prevent radiation. Measures shall also be taken to prevent radiation from radiotelephone alarm tests carried out on frequencies other than 2182 kHz and 156.80 MHz.

A listening watch must always be set on the appropriate frequency before testing in order to guard against interfering with any transmission that might be in progress.

Port Operations and Ship Movement Services

160. Communications on port operations channels must be restricted to those relating to operational handling, the movement and the safety of ships and, in emergency, to the safety of persons. Public correspondence messages are excluded from this service.

Communications on ship movement channels must be restricted to those relating to the movement of ships. Public correspondence messages are excluded from this service.

“On-board” Communications

161. On-board communications are intended for use for internal communications on board a ship, or between a ship and its lifeboats and liferafts during lifeboat drills or operations, or for communication within a group of vessels being towed or pushed, as well as for line handling and mooring instructions.

Calls for internal communications on board ship when in territorial waters consist of:

(a) From the master station:

—the name of the ship followed by a single letter (ALFA, BRAVO, CHARLIE, etc., indicating the sub-station), not more than three times;

*As from 1 January 1978 these frequencies will be replaced by 4125.0 kHz and 6215.5 kHz respectively.

- the words THIS IS;
- the name of the ship followed by the word CONTROL;

(b) From the sub-station:

- the name of the ship followed by the word CONTROL, not more than three times;
- the words THIS IS;
- the name of the ship followed by a single letter (ALFA, BRAVO, CHARLIE, etc., indicating the sub-station).

PART 4—TRANSMISSION OF RADIOTELEGRAMS

General

162. Radiotelegrams must be transmitted in the order of priority given in Section 20; radiotelegrams of the same order of priority should be transmitted in the progressive order of their times of handing-in.

In communications between a coast station and a ship station, the coast station decides the order of working; in communications between two ship stations the decision rests with the ship which is called.

In routing radiotelegrams, a ship station should, as a general rule, give preference to the coast station established on the territory of the country of destination, or the country likely to provide the most suitable transit route for radiotelegrams.

If a ship station is unable to dispose of a radiotelegram direct to a coast station it may relay it via another ship station free of charge provided the latter consents. The ship relaying the radiotelegram disposes of it in the same manner as if it originated with itself, noting at the end of the preamble that it has been relayed "Via" (name of relaying ship).

Radiotelegrams from ships must be numbered in a separate daily series to each station. Number 1 is given to the first radiotelegram sent each day, commencing at 0001 G.M.T., to each separate station. The same series of numbers is used for radiotelegrams whether sent by radiotelephony or radiotelegraphy.

In case of subsequent enquiry any particular radiotelegram may be referred to by its number in a series.

For the formation and explanation of the different parts of a radiotelegram see Section 31.

Form of Transmission of a Radiotelegram

163. When communication has been established between two stations on working frequencies, and working procedure agreed, the transmission of a radiotelegram is preceded by:

- the name, call sign or other identification of the station called;
- the words THIS IS (or DE spoken as DELTA ECHO in case of language difficulties);

- the name, call sign or other identification of the calling station;

The transmission of a radiotelegram is commenced by the spoken words "Radiotelegram begins" and is terminated by the spoken words "Radiotelegram ends".

The radiotelegram must be sent in the following order:

- Commencing signal ("Radiotelegram begins").
- Name of the ship of origin (office of origin if originating on land).
- Serial number of radiotelegram.
- Number of words.
- Date.
- Time of handing-in.
- Service instructions, such as routing instructions (if any).
- Supplementary instructions, such as "Reply Paid" (if any).
- Address.
- Text; (if no signature follows send finishing signal here).
- Signature (if any).
- Finishing signal ("Radiotelegram ends").

A radiotelegram should be sent slowly, allowing sufficient time for it to be copied at the receiving station, and each word spoken distinctly.

If the radiotelegram contains figures, secret language, difficult or exceptional words, these should be repeated at the end to make sure of correct reception, if necessary, by using the spelling table shown in Appendix 2, or the whole radiotelegram may be repeated if considered desirable. Such repetition should be given after the finishing signal ("Radiotelegram ends") and should be preceded by the spoken words "I REPEAT".

Where figures occur in the address or text of a radiotelegram they should be spoken separately and should be preceded by the words "In figures", e.g. "42 crans" should be spoken "IN FIGURES, FOUR TWO CRANS", or "IN FIGURES KARTEFOUR BISSOTWO CRANS".

If a number is written in letters it should be spoken as it is written and preceded by the words "In letters", e.g. "forty-two crans" should be spoken "IN LETTERS FORTYTWO CRANS".

If the receiving station requires the repetition of the whole or any part of the radiotelegram it will request the sending station to repeat what is required.

If the receiving station is doubtful about the accuracy of the whole or any part of the radiotelegram it may repeat it back to the sending station, preceding the repetition with the spoken words "REPEAT FOR CHECK", followed by the repetition. The sending station should check this repetition carefully and if it is correctly repeated should indicate this to the receiving station by the word "CORRECT".

Acknowledgment of Receipt

164. When the receiving station has received the radiotelegram correctly it replies:

- name, call-sign or other identification of the sending station;
- the words THIS IS (or DE spoken as DELTA ECHO in case of language difficulties);
- name, call-sign or other identification of the receiving station;
- “Your No. received, over” (or R spoken as ROMEO (number), K spoken as KILO in case of language difficulties).

A sending station must not consider a radiotelegram as cleared and disposed of until a proper acknowledgment of receipt from the receiving station has been duly obtained.

Example of Transmission of a Radiotelegram

165. The ship "KINGSTON JADE" has established communication on working frequencies with Humber Radio, and has advised that station that it wishes to send one radiotelegram.

Humber Radio replies:

"KINGSTON JADE, THIS IS HUMBER RADIO —
SEND YOUR RADIOTELEGRAM — OVER".

"Kingston Jade" replies:

"HUMBER RADIO, THIS IS KINGSTON JADE —
RADIOTELEGRAM BEGINS — FROM KINGSTON
JADE — NUMBER 2 — NUMBER OF WORDS 8 —
DATE 14TH — TIME 1130 — ADDRESS — SMITH
GRIMSBY — TEXT — EXPECT DOCK FRIDAY
NOON TIDE — SIGNATURE — MASTER — RADIOTELGRAM
ENDS — OVER".

Humber Radio replies:

“KINGSTON JADE, THIS IS HUMBER RADIO —
YOUR NUMBER 2 RECEIVED — OUT”.

“Kingston Jade” replies:

“HUMBER RADIO, THIS IS KINGSTON JADE —
OUT”.

(A slight pause should be made where indicated by dashes.)

Communication between the two stations is now finished.

Procedure when Communication becomes Difficult

166. When communication between a ship station and a coast station becomes difficult, every effort should be made to complete the radiotelegram in course of transmission. If this is not possible the radiotelegram should be held until a favourable opportunity occurs. If it is doubtful whether communication can be re-established within twenty-four hours, e.g. in the case of a ship station passing out of the service area of a coast station, the sender should be advised immediately of the reason for the non-transmission of the radiotelegram. The sender may then request:

- that the radiotelegram be transmitted through another coast station; or
- that the radiotelegram be held until it can be transmitted without additional charge; or
- that the radiotelegram be cancelled.

When a ship station subsequently transmits a radiotelegram to the coast station which incompletely received it, care should be taken to make known to the coast station that its transmission had previously been commenced in order that additional charges do not become involved. This must be indicated by adding the word “ampliation” in the preamble of the radiotelegram. If, however, the radiotelegram is subsequently transmitted to another coast station of the same administration or private enterprise, the new transmission must bear the service instruction “ampliation via” (insert the name of the coast station to which the radiotelegram was transmitted in the first instance) in the preamble of the radiotelegram.

A station which has received a radiotelegram and has been unable to acknowledge its receipt in the usual way, must take the first favourable opportunity to give such acknowledgment. When this acknowledgment cannot be given direct to the station that transmitted the radiotelegram, it may be forwarded by service

advice through another ship, or through another coast station of the same administration. In any case no additional charge must result.

Preamble for Inland Transmission from Coast Stations

167. When a coast station sends over the inland telecommunication network a radiotelegram received from a ship station, it inserts after the name of the ship of origin the name of the coast station and the name of the last ship which acted as intermediary (should any re-transmission have occurred).

In order to avoid any confusion with a telegraph office or a fixed station of the same name, the coast station may, if desirable, complete the indication of the name of the ship of origin by the word "ship" placed before the name of the station of origin.

PART 5—ESTABLISHMENT OF RADIOTELEPHONE CALLS

General

168. For particulars of the types of radiotelephone call available in the public correspondence service between ship stations and subscribers on land see Section 74.

Stations taking part in this public correspondence service must be equipped with devices for switching from transmission to reception as rapidly as possible and vice versa. The service on ship stations should, as far as possible, be operated on a duplex basis.

Setting up a Radiotelephone Call

169. When communication has been established between a ship station and a coast station on working frequencies and the ship station wishes to establish a call to a subscriber on land, the ship station signals:

- the name or other identification of the coast station;
- the words THIS IS or DE spoken as DELTA ECHO in case of language difficulties;
- the name or other identification of the ship station;
- “I HAVE A CALL FOR (telephone exchange and number, spoken twice), OVER”.

The coast station will reply requesting the ship station to “STAND BY” and will proceed to establish connection with the telephone network as quickly as possible. The ship station will continue to listen on the coast station working frequency until the required telephone subscriber is secured.

When the subscriber is secured, the coast station will say to the ship station “YOU ARE CONNECTED TO (telephone exchange and number), GO AHEAD”. The ship station will then continue with the call to the land subscriber.

If for any reason the connection cannot be quickly established, the coast station will inform the ship station accordingly. The ship station will then either continue to listen until an effective connection can be established or call the coast station later at a mutually agreed time.

The coast station will decide the duration of the call for charging purposes and will normally inform the ship station of that duration immediately the conversation with the land subscriber ceases.

CHAPTER VII

Distress, Urgency and Safety Communications by Radiotelephony

General

170. An extensive international organisation exists for assisting vessels in distress. By taking part in this organisation and following the procedure laid down in this chapter, all ships can help to ensure that such vessels obtain assistance without delay. However, nothing in this procedure prevents:

- (a) a ship in distress from making use of any means at its disposal to attract attention, make known its position and obtain help;
- (b) ships engaged in search and rescue operations, in exceptional circumstances, from making use of any means at their disposal to assist a ship in distress.

The radiotelephone alarm signal, the distress call and the distress message shall be sent only on the authority of the master or person responsible for the ship.

In cases of distress, urgency and safety, transmissions must be made slowly and distinctly, each word being clearly pronounced. Figures and bearings should be repeated. The Abbreviations Phonetic Alphabet and Figure Code in Appendix 2 should be used where applicable and, where language difficulties exist, the use of the International Code of Signals is also recommended.

Extreme care should be taken by all stations taking part in distress communications to ensure that their transmissions do not cause harmful interference to the other stations engaged, especially to the transmissions of the station actually in distress.

Distress Frequency

171. (1) The frequency 2182 kHz* is the international distress frequency for radiotelephony; it must be used for this purpose by ship, aircraft and survival craft stations and by emergency position-indicating radiobeacons using frequencies in the

*Whatever the class of emission used, the frequency 2182 kHz always designates the carrier frequency of the emission.

authorised bands between 1605 and 4000 kHz when requesting assistance from the maritime services. It is used for the distress call and distress traffic, for signals of emergency position-indicating radiobeacons, for the urgency signal and urgency messages, the navigational warning signal and for the safety signal. Safety messages must be transmitted, where practicable, on a working frequency after a preliminary announcement on 2182 kHz.

United Kingdom and many foreign coast stations keep continuous watch on 2182 kHz.

In the interests of safety of life at sea, all ships fitted solely with radiotelephony should keep the maximum watch practicable on 2182 kHz. When a continuous watch is not practicable, ships should, as far as possible, listen on 2182 kHz twice each hour for three minutes commencing at the hour and half hour. During these three-minute periods, all transmissions on 2182 kHz, except distress, urgency and safety communications, must cease.

(2) The frequency 156.80 MHz is the distress frequency for radiotelephony for stations of the maritime mobile service when using frequencies in the authorised bands between 156 and 174 MHz. It is used for the distress signal and call and distress traffic, for the urgency signal, urgency traffic and the safety signal. Safety messages transmitted by a coast station will normally be sent on a working frequency after a preliminary announcement on 156.80 MHz. The class of emission to be used for radiotelephony on the frequency 156.80 MHz shall be F3.

United Kingdom and many foreign coast stations keep continuous watch on 156.80 MHz. Ship stations should, where practicable, maintain watch on 156.80 MHz when within the service area of a coast station providing international maritime mobile radiotelephone service in the band 156-174 MHz. Ship stations fitted only with VHF radiotelephone equipment operating in the authorised bands between 156 and 174 MHz should maintain watch on 156.80 MHz, when at sea.

Alarm Signals

172. (1) RADIOTELEPHONE ALARM SIGNAL

The radiotelephone alarm signal consists of two audio frequency tones (one of 2200 and the other of 1300 Hz) transmitted alternately, giving a distinctive warbling sound, which can be distinguished by ear through heavy interference.

When generated automatically the signal should be sent continuously for a period of at least thirty seconds but not longer than one minute. When generated by any other means it

should be sent as continuously as practicable for a period of approximately one minute.

The purpose of this signal is to attract the attention of the person on watch, or to actuate automatic devices giving the alarm.

It must be used only:

- (a) to announce that a distress call or message is about to follow;
- (b) by a duly authorised coast station to announce the transmission of an urgent cyclone warning, which should be preceded by the safety signal;
- (c) to announce the loss of a person or persons overboard when the assistance of other ships is required and cannot be obtained satisfactorily by the use of the urgency signal only, but the alarm signal must not be repeated by other stations. The message must be preceded by the urgency signal (see Section 185).
- (d) by emergency position-indicating radiobeacons of Type II (see Section 184).

The radiotelephone alarm signal transmitted by coast stations may be followed by a single tone of 1300 Hz for ten seconds.

(2) NAVIGATIONAL WARNING SIGNAL

The navigational warning signal consists of a single audio tone of 2200 Hz interrupted to give a sequence of alternate tone dashes and spaces each of duration 250 milliseconds lasting for fifteen seconds. The purpose of this signal is to attract attention to the announcement of a vital navigational warning to follow.

(3) EMERGENCY POSITION-INDICATING RADIODEACON SIGNAL

The emergency position-indicating radiobeacon signal consists of a single audio frequency tone of 1300 Hz interrupted to give a sequence of tone dashes and spaces each of duration 250 milliseconds lasting for one to five seconds (see also 184).

(4) ALL SHIPS CALL (Selective Calling System)

The "All Ships Call" signal, which is reserved for alarm purposes only, consists of a continuous sequential transmission of eleven audio frequencies. The purpose of this special signal is to actuate receiving selectors on all ships regardless of individual code numbers.

The use of the "All Ships Call" is confined to distress and urgency in the MF and HF bands and the announcement of

vital navigational warnings in those bands; additionally it may be used for safety purposes in the VHF band. This call may only be used to supplement, if required, the distress procedure specified in 176 and shall in no circumstances be used in place of such procedures, in particular the alarm signal mentioned in 172(1).

Distress Signal

173. The radiotelephone distress signal consists of the word MAYDAY pronounced as the French expression "m'aider".

This signal indicates that a ship or an aircraft is threatened by grave and imminent danger and requests immediate assistance.

Distress Call

174. The radiotelephone distress call consists of:

- the distress signal MAYDAY, spoken three times;
- the words THIS IS (or DE spoken as DELTA ECHO in case of language difficulties);
- the name, or other identification, of the station in distress, spoken three times.

This call has absolute priority over all other transmissions. All stations hearing it, or the alarm signal preceding it, must immediately cease any transmission which could cause interference to the distress traffic, and continue to listen on the frequency for the sending of the distress message which follows.

Distress Message

175. The distress message consists of:

- the distress signal MAYDAY;
- the name, or other identification, of the mobile station in distress;
- particulars of its position;
- the nature of the distress and the kind of assistance desired;
- any other information which might facilitate the rescue.

The position of the ship should be given in terms of latitude and longitude, or whenever practicable, as a true bearing and distance from a known geographical point. If, however, the vessel is in distress on a rock or shoal, or near a headland or other place, a precise geographical indication of the position should be given in order that the place cannot be confused with any other place or part of the coast, e.g. "near the Skerries off

Holyhead". If drifting, the master should, if possible, also state the direction and rate of drift. He should also indicate any subsequent material change in the position or intentions of the vessel in distress.

Distress Call and Message Transmission Procedure

176. The radiotelephone distress procedure consists of:

- the alarm signal (whenever possible) followed by:
- the distress call;
- the distress message.

The distress message, preceded by the distress call, and the alarm signal if possible, shall be repeated at intervals, especially during the periods of silence mentioned in Sections 143 and 171, until an answer is received.

When the station in distress receives no answer to a distress message sent on a distress frequency, the message may be repeated on any other available frequency upon which attention might be attracted.

After the transmission of its distress message, the station may be requested to transmit suitable signals, followed by its name or other identification, to permit direction-finding stations to determine its position. This request may be repeated at frequent intervals if necessary.

Example of Distress Procedure

177. In this example it is assumed that the vessel "NONSUCH" has struck a rock and is in danger of sinking.

The master or person responsible for the "NONSUCH" having given the authority, the following is a list of the items, with the example opposite each item, comprising the complete distress call and message that the vessel will send out on a distress frequency:

ITEM	EXAMPLE (Read down the columns)
The alarm signal	One minute transmission of the alarm signal, if possible, then the following spoken:
The distress call	
—distress signal (three times)	MAYDAY MAYDAY MAYDAY
—the words THIS IS	THIS IS
—the name of the ship (three times)	NONSUCH NONSUCH NON SUCH

ITEM	EXAMPLE (Read down the columns)
The distress message	
—distress signal	MAYDAY
—name of the ship	NON SUCH
—position	NEAR SKERRIES OFF HOLYHEAD
—nature of distress and assistance required	STRUCK ROCK AND IN SINKING CONDITION REQUIRE IMMEDIATE ASSISTANCE
—other information to help rescue ships	WILL FIRE A DISTRESS ROCKET AT INTERVALS
—invitation to reply and acknowledge	OVER.

Acknowledgment of Receipt of a Distress Message

178. The acknowledgment of receipt of a distress message is given in the following form:

- the distress signal MAYDAY;
- the name, call-sign, or other identification, of the station sending the distress message, spoken three times;
- the words THIS IS (or DE spoken as DELTA ECHO in case of language difficulties);
- the name, or other identification, of the station acknowledging receipt, spoken three times;
- the word RECEIVED (or RRR spoken as ROMEO ROMEO ROMEO in case of language difficulties);
- the distress signal MAYDAY.

EXAMPLE:

MAYDAY NON SUCH NON SUCH NON SUCH
THIS IS
KINGSTON JADE KINGSTON JADE
KINGSTON JADE
RECEIVED MAYDAY

Obligation to Acknowledge Receipt of a Distress Message

179. Ships which receive a distress message from a mobile station:

- in their immediate vicinity, must acknowledge receipt immediately. However, in areas where reliable communication with a coast station is practicable, the acknowledgement should be deferred for a short interval to allow the coast station to acknowledge receipt without interference;

(b) **not in their vicinity**, must acknowledge receipt after the elapse of a short interval to permit stations nearer to the mobile station in distress to acknowledge receipt without interference. However, a station of the maritime mobile service which has received a distress message from a mobile station which, beyond any possible doubt, is a long distance away, need not acknowledge receipt of messages except when, although not in a position to render assistance, it has heard a distress message which has not been acknowledged.

Every ship station which has acknowledged receipt of a distress message shall, upon the order of the master or person responsible for the ship, transmit as soon as possible the following information in the order shown:

- its name;
- its position;
- the speed at which it is proceeding towards, and the approximate time it will take to reach, the mobile station in distress;
- additionally, if the position of the ship in distress appears doubtful, ship stations should also transmit, when available, the true bearing of the ship in distress preceded by the abbreviation QTE (for classification of bearings, see Appendix 8).

Before transmitting this message the station must assure that it will not interfere with the emissions of other stations better situated to render assistance to the station in distress.

When a mobile station has heard a distress message which has not been acknowledged, but is not itself in a position to render assistance, it must take all possible steps to attract the attention of other mobile stations which might be able to do so. For this purpose, with the approval of the master or person responsible for the ship, the distress call and message (and the alarm signal if necessary) may be repeated (see Section 182 for the procedure to be used).

Distress Traffic

180. Distress traffic consists of all communications concerned with rendering immediate assistance to the mobile station in distress; the distress signal (MAYDAY) should be sent before each call and before each message concerned.

Control of Distress Traffic

181. The control of distress traffic is the responsibility of the ship in distress or of the station sending a distress message under the conditions outlined in Section 182. However, this responsibility may be delegated to another station, e.g. to a coast station.

The ship in distress or the station controlling the distress traffic, may impose silence either on all stations of the mobile service in the area or on any station which interferes with distress traffic, by sending the instruction "SEELONCE MAYDAY" followed by its own name or other identification on the frequency being used for distress purposes. No other station may use this expression.

If any other station near the mobile station in distress believes it essential to do so, it may similarly impose silence, but in this case it must use the expression "SEELONCE DISTRESS" followed by its own name or other identification.

Any ship which has knowledge of distress traffic and cannot itself render assistance must follow such traffic until it is evident that assistance is being provided.

All ships which are aware of distress traffic, and are not taking part in it, are forbidden to transmit on a frequency being used for distress traffic except in the following circumstances:

When complete silence is no longer considered necessary on a frequency which is being used for distress traffic, the station controlling the traffic shall transmit on that frequency a message addressed to "all stations", in the following form, indicating that restricted working may be resumed:

- the distress signal MAYDAY;
- the call "HELLO ALL STATIONS" or CQ (spoken as CHARLIE QUEBEC) spoken three times;
- the words THIS IS (or DE spoken as DELTA ECHO in case of language difficulties);
- the name, call-sign, or other identification, of the station sending the message;
- the time of handing-in of the message;
- the name and call-sign of the mobile station which is in distress;
- the words PRU-DONCE pronounced as the French word "prudence".

When the distress traffic has completely ceased on a frequency which has been used for distress traffic, the station which has controlled the distress traffic must let all stations know that

normal working may be resumed. This is done by sending a message in the following form to "all stations":

- the distress signal MAYDAY;
- the call "HELLO ALL STATIONS" or CQ (spoken as CHARLIE QUEBEC) spoken three times;
- the words THIS IS (or DE spoken as DELTA ECHO in case of language difficulties);
- the name, call-sign, or other identification, of the station sending the message;
- the time of handing-in of the message;
- the name and call-sign of the mobile station which was in distress;
- the words "SEELONCE FEENEE".

When a station in distress has delegated control of distress working to another station, the person in charge of the station in distress should, when he considers silence no longer justified, immediately inform the controlling station, which will then advise CQ (all stations) that normal or restricted working may be resumed.

Transmission of a Distress Message by a Station Not Itself in Distress

182. A ship station or a coast station which learns that a mobile station is in distress, shall transmit a distress message in any of the following cases:

- (a) when the station in distress cannot itself transmit a distress message;
- (b) when the master or person responsible for a ship not in distress, or the person responsible for the coast station, considers that further help is necessary;
- (c) when, although not in a position to render assistance, it has heard a distress message which has not been acknowledged (see Section 179).

When a distress message is transmitted by a station, not itself in distress, this fact must be made quite clear. If this is not done, direction-finding bearings might be taken on the station making this transmission and assistance could thereby be directed to the wrong position. Therefore in the cases mentioned in (a), (b) and (c) above, where the stations sending the distress message are not actually in distress themselves, and in any other circumstances where a distress message might be repeated by a station

not itself in distress, the transmission of the distress message must always be preceded by the following call, which is preceded by the alarm signal, when possible:

- the signal MAYDAY RELAY, spoken three times;
- the words THIS IS (or DE spoken as DELTA ECHO in case of language difficulties);
- the name, call-sign, or other identification, of the station making the transmission, spoken three times.

A ship station should not acknowledge receipt of a distress message transmitted by a coast station under the conditions mentioned above until the master or person responsible has confirmed that the ship station concerned is in a position to render assistance.

Misuse of Distress Signal

183. The use of the distress signal is absolutely forbidden except in the case of distress.

The distress signal is provided for use in cases of imminent danger when immediate aid is necessary. Its use for less urgent purposes might result in insufficient attention being paid to calls made from ships who really require immediate assistance.

Where the sending of the distress signal is not fully justified, use should be made of the urgency signal (PAN PAN, see Section 185), which has priority over all other communications except distress.

Emergency Position-indicating Radiobeacon Signals

184. The emergency position-indicating radiobeacon signal consists of:

- (a) for medium frequencies, i.e. 2182 kHz:
 - (i) a keyed emission modulated by a tone of 1300 Hz, and having a ratio of the period of emission to the period of silence equal to or greater than one, and an emission duration between one and five seconds;
or
 - (ii) the radiotelephone alarm signal followed by the morse letter B and/or the call-sign of the ship to which the radiobeacon belongs, transmitted by keying a carrier modulated by a tone of either 1300 or 2200 Hz;
- (b) for the frequencies 121.5 and 243 MHz, the signal characteristics recommended by the International Civil Aviation Organisation. At present this is a swept tone modulation

sweeping downward over a range of not less than 700 Hz, within the range 1600 to 300 Hz, with a repetition rate of between two and three sweeps per second.

Only the signal specified in (a) is used by low power radio-beacons (Type L) and it must be transmitted continuously.

High power radiobeacons (Type H) may transmit either of the signals specified in (a) and (b) with a keying cycle which consists of the keying signal for between thirty and fifty seconds followed by a period of silence of between thirty and sixty seconds.

However, both these keying cycles may be interrupted for speech transmission.

The essential purpose of the emergency position-indicating radiobeacon signals is to determine the position of survivors during search and rescue operations.

The signals indicate that one or more persons are in distress, may no longer be on board a ship or an aircraft, and that receiving facilities may not be available.

Any mobile station receiving one of these signals, while no distress or urgent traffic is being passed, should take the action indicated in Section 182.

Urgency Signal

185. The radiotelephone urgency signal is sent only on the authority of the master or person responsible for the ship.

It consists of three repetitions of the group of words PAN PAN and indicates that the station sending it has a very urgent message to transmit concerning the safety of a ship, aircraft or other vehicle, or the safety of a person.

The urgency signal and the message which follows are sent on either or both of the international distress frequencies (2182 kHz, 156.80 MHz) or on any other frequency which may be used in case of distress. In the case of 2182 kHz, however, the message should be transmitted on a working frequency:

- (a) in the case of a long message or a medical call, or
- (b) in areas of heavy traffic in the case of the repetition of such a message.

An indication to this effect should be given at the end of the call.

The message may be addressed to a particular station or to "all stations". If addressed to "all stations" the station sending it must cancel it by a similarly addressed message when action is no longer necessary.

The urgency signal has priority over all other communications except distress. All stations hearing it must avoid interfering with the message which follows.

Ships hearing an urgency signal must continue to listen for at least three minutes. At the end of that period, if no urgency message has been heard, a land station should, if possible, be notified of the receipt of the Urgency Signal. Thereafter, normal working may be resumed.

Example of Urgency Call and Message

186. The following is an example of an urgency call and message from the vessel "Nonsuch" which has lost its propeller and urgently requires a tow:

ITEM	EXAMPLE (Read down the columns)
Urgency signal (three times)	PAN PAN — PAN PAN — PAN PAN
The call	
(a) name of station called (up to three times)	HELLO ALL STATIONS HELLO ALL STATIONS HELLO ALL STATIONS
(b) the words THIS IS	THIS IS
(c) name of the calling station (up to three times)	NON SUCH NON SUCH NON SUCH
The urgency message	30 MILES DUE EAST OF FLAMBOROUGH HEAD LOST PROPELLER DRIFTING EAST SOUTH EAST AT TWO KNOTS REQUIRE TOW URGENTLY OVER.

Safety Signal

187. The radiotelephone safety signal consists of the word "SÉ-CURITÉ" (pronounced SAY-CURE-E-TAY) sent three times before the call and indicates that the station is about to transmit a message containing an important navigational or important meteorological warning.

The safety signal and call should be sent on either or both of the international distress frequencies (2182 kHz, 156.80 MHz) but may be sent on any other designated frequency for distress.

In the case of 2182 kHz, however, the safety message which follows the call should be sent on a working frequency. A suitable announcement to this effect should be made at the end of the call.

Safety messages are normally addressed to "all stations". They may, however, be addressed to a particular station.

With the exception of messages transmitted at fixed times, the safety signal should be transmitted towards the end of the first available silence period and the message transmitted immediately after the silence period (see Section 143).

Meteorological and navigational warning messages must be transmitted without delay, and repeated as indicated above at the end of the first silence period which follows.

All stations hearing the safety signal must listen to the safety message until they are satisfied that it is of no concern to them.

They shall not make any transmission likely to interfere with the message.

CHAPTER VIII

Special Services

Radiodetermination Services

188. Administrations which operate radiodetermination stations providing services of value to the maritime mobile service notify the particulars and characteristics of their stations for publication in the List of Radiodetermination and Special Service Stations. Administrations take steps to ensure the effectiveness and regularity of their services, but accept no responsibility for the consequences that might arise from the use of inaccurate information furnished, defective working or failure of their stations.

Information concerning modification or irregularity of working of a radiodetermination station is sent out by the appropriate coast stations daily, if necessary, until such time as normal working is restored, or, if a permanent alteration has been made, until such time as it can reasonably be taken that all navigators interested have been warned.

Permanent alterations, or irregularities of long duration, are published as soon as possible in the appropriate notices to navigators.

Radio Direction-finding

189. Particulars of coastal radio direction-finding stations, including the sectors in which bearings are normally reliable, are published in the List of Radiodetermination and Special Service Stations. Before calling one or more radio direction-finding stations for the purpose of asking for a bearing or position, a ship station should obtain the necessary information regarding call signs or other identifications, watch frequencies, grouping of stations, etc., from this List.

The radiotelegraph frequency normally used for radio direction-finding in the maritime radionavigation service is 410 kHz. All stations taking part in this service must be able to use this frequency. In addition, they must be able to take bearings on 500 kHz, especially for locating stations sending signals of distress, alarm and urgency.

Where a radio direction-finding service is provided in the

authorised bands between 1605 and 2850 kHz, radio direction-finding stations should be able to take bearings on the radio-telephone distress and calling frequency, 2182 kHz.

The procedure for obtaining radio direction-finding bearings and positions is given in Appendix 8.

For the relative priority of communications concerned with radio direction-finding see Section 20.

Radiobeacon Stations

190. Particulars of radiobeacon stations for use by the maritime services are published in the List of Radiodetermination and Special Service Stations.

In the bands between 285 and 315 kHz, the maritime radiobeacon stations controlled by a large number of the administrations of the European Maritime Area (including the United Kingdom and the Irish Republic) operate on an internationally agreed frequency sharing plan, which allows a group of up to six different radiobeacons to transmit on the same frequency. The grouping of the radiobeacon stations is planned to facilitate the taking of cross-bearings and in some cases will include radiobeacons controlled by more than one administration inside the same group.

These radiobeacon stations transmit consecutively during a six minute cycle in an agreed order according to the number of stations inside the group, a standardised type of characteristic signal, e.g. if there are six radiobeacon stations in the group, each station transmits its characteristic signal for one minute, in turn, in each six minute cycle; if there are three stations in the group, either the first station transmits for the first and fourth minute, the next for the second and fifth minutes and the last for the third and sixth minutes, or, the first transmits for the first two minutes, the second for the next two minutes and the third for the last two minutes of the six minute cycle.

Meteorological Information

191. Particulars of stations sending out meteorological bulletins at fixed times are given in the List of Radiodetermination and Special Service Stations.

Particulars of coast stations in the United Kingdom and Irish Republic sending out meteorological bulletins and meteorological warning messages are also given in Notices to Ship Wireless Stations.

Meteorological warning messages are prefixed by the safety signal and are normally transmitted on a working frequency after

a preliminary announcement on the appropriate calling and distress frequency.

During the transmission of meteorological bulletins and warning messages intended for reception by ship stations, all stations of the maritime service whose transmissions might interfere with the reception of these messages must keep silent in order to permit all stations which desire to do so to receive these messages.

A special meteorological forecast for shipping for any area between parallels 35 degrees and 65 degrees North, and the meridian 40 degrees West and the coasts of the European Continent, for periods up to 24 hours, may be obtained at any time on request from a United Kingdom coast station. The request should be addressed to the coast station and should state the required period, the required area and the ship's name.

The request will be sent to the Meteorological Office at Bracknell and the reply sent to the ship by the coast station as soon as possible. Radiotelephone link calls requesting forecasts can be made through U.K. Coast Stations to the Deputy Forecaster, Bracknell 20242, Extension 508. A standard charge will be made for the inland telegraph service or R/T call.

Example of Request Message:

"ANGLESEY RADIO = INDICATE WEATHER FORECAST FOR NEXT 12 HOURS IRISH SEA = KINGSTON JADE".

Any ship station may, for its own use, listen to messages containing meteorological observations sent out by other ship stations, even those which are addressed to a national meteorological service. Ship stations which transmit meteorological observations addressed to a national meteorological service are not required to repeat them to other stations; however, exchange of information relating to the weather is authorised between ship stations.

Messages originating in ship stations containing information concerning the presence of cyclones must be transmitted with the least possible delay to other ship stations in the vicinity and to the appropriate authorities at the first point of the coast with which contact can be established. Their transmission is preceded by the safety signal.

Navigational Information

192. Particulars of stations making regular transmissions of navigational information for the benefit of mariners are published in the List of Radiodetermination and Special Service Stations.

Particulars of the transmissions made from coast stations in the United Kingdom and Irish Republic are also given in Notices to Ship Wireless Stations.

The transmissions are prefixed by the safety signal and are normally sent on a working frequency after a preliminary announcement on the appropriate calling and distress frequency.

Messages containing information concerning the presence of dangerous ice, dangerous wrecks, or any other imminent danger to marine navigation, must be transmitted as soon as possible to other ship stations in the vicinity, and to the appropriate authorities at the first point of the coast with which contact can be established. These transmissions should be preceded by the safety signal.

During the transmission of navigational information, all stations of the maritime mobile service should avoid making transmissions which might interfere with the reception of the information by stations desiring to receive it.

Medical Advice and Medical Assistance

193. Medical advice can be obtained from any coast station in the United Kingdom and Irish Republic by addressing a radiogram to the station concerned. The coast station will communicate the message to the appropriate medical authority whose reply will be signalled to the ship.

Similarly, if medical assistance (e.g. a doctor) from the shore is required, the request should be addressed as a radiogram to the coast station. The coast station will communicate the message to the coastguard who will take the necessary action.

In both cases the messages will be exchanged free of charge. Subject to the conditions laid down in Sections 132 and 185 the use of the Urgency Signal (XXX on radiotelegraphy and PAN PAN on radiotelephony) is proper in both cases.

Details of the facilities available to ships at sea for obtaining medical advice through the medium of the radio services of other countries are given in the List of Radiodetermination and Special Service Stations.

APPENDIX 1

International Morse Code Signals

LETTERS

a --
ä - - - -
á or å - - - - -
b - - - -
c - - - - .
ch - - - - -
d - - - -
e -
é - - - - -
f - - - -
g - - - -
h - - - -
i - -
j - - - - -
k - - - -
l - - - - .
m - - - -
n - - - -
ñ - - - - - -
o - - - - -
ö - - - - - -
p - - - - -
q - - - - - -
r - - - - .
s - - - -
t -
u - - - -
ü - - - - - -
v - - - - -
w - - - - -
x - - - - -
y - - - - - -
z - - - - - -

Spacing and length of the signals:

- (a) a dash is equal to three dots;
- (b) the space between the signals forming the same letter is equal to one dot;
- (c) the space between two letters is equal to three dots;
- (d) the space between two words is equal to seven dots.

FIGURES

1 - - - - -
 2 - - - - -
 3 - - - - -
 4 - - - - -
 5 - - - - -
 6 - - - - -
 7 - - - - -
 8 - - - - -
 9 - - - - - -
 0 - - - - - -

In routine repetitions, if there can be no misunderstanding on consequence of the presence together of figures and letters or groups of letters, figures may be rendered by means of the following abbreviated signals:

1 - -
 2 - - -
 3 - - - -
 4 - - - - -
 5 - - - - -
 6 - - - - -
 7 - - - -
 8 - - - -
 9 - - - -
 0 - - - -

PUNCTUATION AND OTHER SIGNS

Full stop (period)	...	...	...	...	...	(.)	- - - - -
Comma	...	...	...	...	...	(,)	- - - - -
Colon or division sign	...	...	...	...	...	(:)	- - - - -

Question mark (note of interrogation or request for repetition of a transmission not understood)	(?)	-----
Apostrophe	(')	-----
Hyphen or dash or subtraction sign	(-)	-----
Fraction bar or division sign	(/)	-----
Lefthand bracket (parenthesis)	[(]	-----
Righthand bracket (parenthesis)	[(]	-----
Inverted commas (quotation marks) (before and after the words)	(“ ”)	-----
Double hyphen	(=)	-----
Understood	-----	-----
Error	-----	-----
Cross or addition sign	-----	-----
Invitation to transmit	-----	-----
Wait	-----	-----
End of Work	-----	-----
Commencing signal	-----	-----
Multiplication sign	-----	-----

In order to avoid all possible confusion in transmitting fractional numbers, the fraction must be preceded or followed, as the case may be, by a dash.

Examples: for 2% transmit 2-0/0 and not 20/0

for 4½% transmit 4-1/2-0/0 and not 41/20/0

for ¾ transmit 3/4-8 and not 3/48

The minute sign (') and the second sign (") shall be transmitted by means of the apostrophe sign, transmitted once for the minute sign and twice for the second sign.

APPENDIX 2

Abbreviations and Signals to be used for Radiocommunications

PART 1—Q CODE

Introduction

1. The series of groups listed in this Appendix range from QOA to QUY.
2. The QOA to QQZ series are reserved for the maritime mobile service.
3. Certain Q code abbreviations may be given an affirmative or negative sense by sending, immediately following the abbreviation, the letter C or the letters NO (in radiotelephony spoken as: CHARLIE or NO).
4. The meanings assigned to Q code abbreviations may be amplified or completed by the appropriate addition of other groups, call signs, place names, figures, numbers, etc. It is optional to fill in the blanks shown in parentheses. Any data which is filled in where blanks appear shall be sent in the same order as shown in the text of the following tables.
5. Q Code abbreviations are given the form of a question when followed by a question mark in radiotelegraphy and RQ (ROMEO QUEBEC) in radiotelephony. When an abbreviation is used as a question and is followed by additional or complementary information, the question mark (or RQ) should follow this information.
6. Q code abbreviations with numbered alternative significations shall be followed by the appropriate figure to indicate the exact meaning intended. This figure shall be sent immediately following the abbreviation.
7. All times shall be given in Greenwich Mean Time (G.M.T.) unless otherwise indicated in the question or reply.
8. An asterisk * following a Q code abbreviation means that this signal has a meaning similar to a signal appearing in the International Code of Signals.

Abbreviations Available for the Maritime Mobile Service

A. List of Abbreviations in Alphabetical Order

Abbreviation	Question	Answer or Advice																				
QOA	Can you communicate by radiotelegraphy (500 kHz)?	I can communicate by radiotelegraphy (500 kHz).																				
QOB	Can you communicate by radiotelephony (2182 kHz)?	I can communicate by radiotelephony (2182 kHz).																				
QOC	Can you communicate by radiotelephony (Channel 16—156.80 MHz)?	I can communicate by radiotelephony (Channel 16—156.80 MHz).																				
QOD	Can you communicate with me in . . . <table style="margin-left: 20px;"> <tr><td>0. Dutch</td><td>5. Italian</td></tr> <tr><td>1. English</td><td>6. Japanese</td></tr> <tr><td>2. French</td><td>7. Norwegian</td></tr> <tr><td>3. German</td><td>8. Russian</td></tr> <tr><td>4. Greek</td><td>9. Spanish?</td></tr> </table>	0. Dutch	5. Italian	1. English	6. Japanese	2. French	7. Norwegian	3. German	8. Russian	4. Greek	9. Spanish?	I can communicate with you in . . . <table style="margin-left: 20px;"> <tr><td>0. Dutch</td><td>5. Italian</td></tr> <tr><td>1. English</td><td>6. Japanese</td></tr> <tr><td>2. French</td><td>7. Norwegian</td></tr> <tr><td>3. German</td><td>8. Russian</td></tr> <tr><td>4. Greek</td><td>9. Spanish.</td></tr> </table>	0. Dutch	5. Italian	1. English	6. Japanese	2. French	7. Norwegian	3. German	8. Russian	4. Greek	9. Spanish.
0. Dutch	5. Italian																					
1. English	6. Japanese																					
2. French	7. Norwegian																					
3. German	8. Russian																					
4. Greek	9. Spanish?																					
0. Dutch	5. Italian																					
1. English	6. Japanese																					
2. French	7. Norwegian																					
3. German	8. Russian																					
4. Greek	9. Spanish.																					
QOE	Have you received the safety signal sent by . . . (name and/or call sign)?	I have received the safety signal sent by . . . (name and/or call sign).																				
QOF	What is the commercial quality of my signals?	The quality of your signals is . . . <ul style="list-style-type: none"> 1. not commercial 2. marginally commercial 3. commercial. 																				
QOG	How many tapes have you to send?	I have . . . tapes to send.																				
QOH	Shall I send a phasing signal for . . . seconds?	Send a phasing signal for . . . seconds.																				
QOI	Shall I send my tape?	Send your tape.																				
QOJ	Will you listen on . . . kHz (or MHz) for signals of emergency position-indicating radiobeacons?	I am listening on . . . kHz (or MHz) for signals of emergency position-indicating radiobeacons.																				
QOK	Have you received the signals of an emergency position-indicating radiobeacon on . . . kHz (or MHz)?	I have received the signals of an emergency position-indicating radiobeacon on . . . kHz (or MHz).																				
QOL	Is your vessel fitted for reception of selective calls? If so, what is your selective call number or signal?	My vessel is fitted for the reception of selective calls. My selective call number is . . .																				
QOM	On what frequencies can your vessel be reached by a selective call?	My vessel can be reached by a selective call on the following frequency/ies . . . (periods of time to be added if necessary).																				

Abbreviation	Question	Answer or Advice
QOT	Do you hear my call; what is the approximate delay in minutes before we may exchange traffic?	I hear your call; the approximate delay is . . . minutes.
QRA	What is the name of your vessel (or station)?	The name of my vessel (or station) is . . .
QRB	How far approximately are you from my station?	The approximate distance between our stations is . . . nautical miles (or kilometres).
QRC	By what private enterprise (or State Administration) are the accounts for charges for your station settled?	The accounts for charges of my station are settled by the private enterprise . . . (or State Administration).
QRD	Where are you bound for and where are you from?	I am bound for . . . from . . .
QRE	What is your estimated time of arrival at . . . (or over . . .) (place)?	My estimated time of arrival at . . . (or over . . .) (place) is . . . hours.
QRF	Are you returning to . . . (place)?	I am returning to . . . (place) (or) Return to . . . (place).
QRG	Will you tell me my exact frequency (or that of . . .)?	Your exact frequency (or that of . . .) is . . . kHz (or MHz).
QRH	Does my frequency vary?	Your frequency varies.
QRI	How is the tone of my transmission?	The tone of your transmission is . . . <ol style="list-style-type: none"> 1. good 2. variable 3. bad.
QRJ	How many radiotelephone calls have you to book?	I have . . . radiotelephone calls to book.
QRK	What is the intelligibility of my signals (or those of . . . (name and/or call sign))?	The intelligibility of your signals (or those of . . . (name and/or call sign)) is . . . <ol style="list-style-type: none"> 1. bad 2. poor 3. fair 4. good 5. excellent.
QRL	Are you busy?	I am busy (or I am busy with . . . (name and/or call sign)). Please do not interfere.

Abbre- viation	Question	Answer or Advice
QRM	Is my transmission being interfered with?	Your transmission is being interfered with . . . (1. nil 2. slightly 3. moderately 4. severely 5. extremely).
QRN	Are you troubled by static?	I am troubled by static (1. nil 2. slightly 3. moderately 4. severely 5. extremely).
QRO	Shall I increase transmitter power?	Increase transmitter power.
QRP	Shall I decrease transmitter power?	Decrease transmitter power.
QRQ	Shall I send faster?	Send faster (. . . words per minute).
QRR	Are you ready for automatic operation?	I am ready for automatic operation. Send at . . . words per minute.
QRS	Shall I send more slowly?	Send more slowly (. . . words per minute).
QRT	Shall I stop sending?	Stop sending.
QRU	Have you anything for me?	I have nothing for you.
QRV	Are you ready?	I am ready.
QRW	Shall I inform . . . that you are calling him on . . . kHz (or MHz)?	Please inform . . . that I am calling him on . . . kHz (or MHz).
QRX	When will you call me again?	I will call you again at . . . hours (on . . . kHz (or MHz)).
QRY	What is my turn? <i>(Relates to communication.)</i>	Your turn is Number . . . (or according to any other indication). <i>(Relates to communication.)</i>
QRZ	Who is calling me?	You are being called by . . . (on . . . kHz (or MHz)).
QSA	What is the strength of my signals (or those of . . . (name and/or call sign))?	The strength of your signals (or those of . . . (name and/or call sign)) is . . . 1. scarcely perceptible 2. weak 3. fairly good 4. good 5. very good.
QSB	Are my signals fading?	Your signals are fading.

Abbreviation	Question	Answer or Advice
QSC	Are you a low traffic ship station?	I am a low traffic ship station.
QSD	Are my signals mutilated?	Your signals are mutilated.
QSE*	What is the estimated drift of the survival craft?	The estimated drift of the survival craft is . . . (<i>figures and units</i>).
QSF*	Have you effected rescue?	I have effected rescue and am proceeding to . . . base (with . . . persons injured requiring ambulance.)
QSG	Shall I send . . . telegrams at a time?	Send . . . telegrams at a time.
QSH	Are you able to home with your direction-finding equipment?	I am able to home with my direction-finding equipment (on . . . (<i>name and/or call sign</i>)).
QSI		I have been unable to break in on your transmission. <i>or</i> Will you inform . . . (<i>name and/or call sign</i>) that I have been unable to break in on his transmission (on . . . kHz (<i>or MHz</i>)).
QSJ	What is the charge to be collected to . . . including your internal charge?	The charge to be collected to . . . including my internal charge is . . . francs.
QSK	Can you hear me between your signals and if so can I break in on your transmission?	I can hear you between my signals; break in on my transmission.
QSL	Can you acknowledge receipt?	I am acknowledging receipt.
QSM	Shall I repeat the last telegram which I sent you (<i>or some previous telegram</i>)?	Repeat the last telegram which you sent me (<i>or telegram(s) number(s) . . .</i>).
QSN	Did you hear me (<i>or . . . (name and/or call sign)</i>) on . . . kHz (<i>or MHz</i>)?	I did hear you (<i>or . . . (name and/or call sign)</i>) on . . . kHz (<i>or MHz</i>).
QSO	Can you communicate with . . . (<i>name and/or call sign</i>) direct (<i>or by relay</i>)?	I can communicate with . . . (<i>name and/or call sign</i>) direct (<i>or by relay through . . .</i>).
QSP	Will you relay to . . . (<i>name and/or call sign</i>) free of charge?	I will relay to . . . (<i>name and/or call sign</i>) free of charge.
QSQ	Have you a doctor on board (<i>or is . . . (name of person) on board</i>)?	I have a doctor on board (<i>or . . . (name of person) is on board</i>).

Abbre- viation	Question	Answer or Advice
QSR	Shall I repeat the call on the calling frequency?	Repeat your call on the calling frequency; did not hear you (or have interference).
QSS	What working frequency will you use?	I will use the working frequency . . . kHz (or MHz) (in the high frequency bands normally only the last three figures of the frequency need be given).
QSU	Shall I send or reply on this frequency (or on . . . kHz (or MHz)) (with emissions of class . . .)?	Send or reply on this frequency (or on . . . kHz (or MHz)) (with emissions of class . . .).
QSV	Shall I send a series of V's (or signs) for adjustment on this frequency (or on . . . kHz (or MHz))?	Send a series of V's (or signs) for adjustment on this frequency (or on . . . kHz (or MHz)).
QSW	Will you send on this frequency (or on . . . kHz (or MHz)) (with emissions of class . . .)?	I am going to send on this frequency (or on . . . kHz (or MHz)) (with emissions of class . . .).
QSX	Will you listen to . . . (<i>name and/or call sign(s)</i>) on . . . kHz (or MHz), or in the bands . . ./channels . . .?	I am listening to . . . (<i>name and/or call sign(s)</i>) on . . . kHz (or MHz), or in the bands . . ./channels . . .
QSY	Shall I change to transmission on another frequency?	Change to transmission on another frequency (or on . . . kHz (or MHz)).
QSZ	Shall I send each word or group more than once?	Send each word or group twice (or . . . times).
QTA	Shall I cancel telegram (or message) number . . .?	Cancel telegram (or message) number . . .
QTB	Do you agree with my counting of words?	I do not agree with your counting of words; I will repeat the first letter or digit of each word or group.
QTC	How many telegrams have you to send?	I have . . . telegrams for you (or for . . . (<i>name and/or call sign</i>)).
QTD*	What has the rescue vessel or rescue aircraft recovered?	. . . (<i>identification</i>) has recovered . . . <ol style="list-style-type: none"> 1. . . . (<i>number</i>) survivors 2. wreckage 3. . . . (<i>number</i>) bodies.
QTE	What is my TRUE bearing from you? or What is my TRUE bearing from . . . (<i>name and/or call sign</i>)?	Your TRUE bearing from me is . . . degrees at . . . hours. or Your TRUE bearing from . . . (<i>name and/or call sign</i>) was . . . degrees at . . . hours. or

Abbreviation	Question	Answer or Advice
	What is the TRUE bearing of . . . (name and/or call sign) from . . . (name and/or call sign)?	The TRUE bearing of . . . (name and/or call sign) from . . . (name and/or call sign) was . . . degrees at . . . hours.
QTF	Will you give me my position according to the bearings taken by the direction-finding stations which you control?	Your position according to the bearings taken by the direction-finding stations which I control was . . . latitude . . . longitude (or other indication of position), class . . . at . . . hours.
QTG	Will you send two dashes of ten seconds each (or carrier) followed by your call sign (or name) (repeated . . . times) on . . . kHz (or MHz)? or	I am going to send two dashes of ten seconds each (or carrier) followed by my call sign (or name) (repeated . . . times) on . . . kHz (or MHz). or
	Will you request . . . (name and/or call sign) to send two dashes of ten seconds each (or carrier) followed by his call sign (and/or name) (repeated . . . times) on . . . kHz (or MHz)?	I have requested . . . (name and/or call sign) to send two dashes of ten seconds each (or carrier) followed by his call sign (and/or name) (repeated . . . times) on . . . kHz (or MHz).
QTH	What is your position in latitude and longitude (or according to any other indication)?	My position is . . . latitude . . . longitude (or according to any other indication).
QTI*	What is your TRUE course?	My TRUE course is . . . degrees.
QTJ*	What is your speed?	My speed is . . . knots (or kilometres per hour or . . . statute miles per hour).
	(Requests the speed of a ship or aircraft through the water or air respectively.)	(Indicates the speed of a ship or aircraft through the water or air respectively.)
QTK*	What is the speed of your aircraft in relation to the surface of the earth?	The speed of my aircraft in relation to the surface of the earth is . . . knots (or . . . kilometres per hour or . . . statute miles per hour).
QTL*	What is your TRUE heading?	My TRUE heading is . . . degrees.
QTM*	What is your MAGNETIC heading?	My MAGNETIC heading is . . . degrees.
QTN	At what time did you depart from . . . (place)?	I departed from . . . (place) at . . . hours.
QTO	Have you left dock (or port)? or Are you airborne?	I have left dock (or port). or I am airborne.

Abbreviation	Question	Answer or Advice
QTP	Are you going to enter dock (or port)? <i>or</i> Are you going to alight (or land)?	I am going to enter dock (or port). <i>or</i> I am going to alight (or land).
QTQ	Can you communicate with my station by means of the International Code of Signals (INTERCO)?	I am going to communicate with your station by means of the International Code of Signals (INTERCO).
QTR	What is the correct time?	The correct time is . . . hours.
QTS	Will you send your call sign (<i>and/or name</i>) for . . . seconds?	I will send my call sign (<i>and/or name</i>) for . . . seconds.
QTT		The identification signal which follows is superimposed on another transmission.
QTU	What are the hours during which your station is open?	My station is open from . . . to . . . hours.
QTV	Shall I stand guard for you on the frequency of . . . kHz (or MHz) (from . . . to . . . hours)?	Stand guard for me on the frequency of . . . kHz (or MHz) (from . . . to . . . hours).
QTW*	What is the condition of survivors?	Survivors are in . . . condition and urgently need . . .
QTX	Will you keep your station open for further communication with me until further notice (or until . . . hours)?	I will keep my station open for further communication with you until further notice (or until . . . hours).
QTY*	Are you proceeding to the position of incident and if so when do you expect to arrive?	I am proceeding to the position of incident and expect to arrive at . . . hours (on . . . (<i>date</i>)).
QTZ*	Are you continuing the search?	I am continuing the search for . . . (aircraft, ship, survival craft, survivors or wreckage).
QUA	Have you news of . . . (<i>name and/or call sign</i>)?	Here is news of . . . (<i>name and/or call sign</i>).
QUB*	Can you give me in the following order information concerning: the direction in degrees TRUE and speed of the surface wind; visibility; present weather; and amount, type and height of base of cloud above surface elevation at . . . (<i>place of observation</i>)?	Here is the information requested. <i>(The units used for speed and distances should be indicated.)</i>
QUC	What is the number (<i>or other indication</i>) of the last message you received from me (or from . . . (<i>name and/or call sign</i>))?	The number (<i>or other indication</i>) of the last message I received from you (or from . . . (<i>name and/or call sign</i>)) is . . .

Abbreviation	Question	Answer or Advice
QUD	Have you received the urgency signal sent by . . . (name and/or call sign)?	I have received the urgency signal sent by . . . (name and/or call sign) at . . . hours.
QUE	Can you speak in . . . (language), with interpreter if necessary; if so, on what frequencies?	I can speak in . . . (language) on . . . kHz (or MHz).
QUF	Have you received the distress signal sent by . . . (name and/or call sign)?	I have received the distress signal sent by . . . (name and/or call sign) at . . . hours.
QUH*	Will you give me the present barometric pressure at sea level?	The present barometric pressure at sea level is . . . (units).
QUM	May I resume normal working?	Normal working may be resumed.
QUN	<p>1. <i>When directed to all stations:</i> Will vessels in my immediate vicinity . . . or (in the vicinity of . . . latitude . . . longitude) or (in the vicinity of . . .) please indicate their position, TRUE course and speed?</p> <p>2. <i>When directed to a single station:</i> Please indicate your position, TRUE course and speed?</p>	My position, TRUE course and speed are . . .
QUO*	<p>Shall I search for . . .</p> <ol style="list-style-type: none"> 1. aircraft 2. ship 3. survival craft <p>in the vicinity of . . . latitude . . . longitude (or according to any other indication)?</p>	<p>Please search for . . .</p> <ol style="list-style-type: none"> 1. aircraft 2. ship 3. survival craft <p>in the vicinity of . . . latitude . . . longitude (or according to any other indication).</p>
QUP*	<p>Will you indicate your position by</p> <ol style="list-style-type: none"> 1. searchlight 2. black smoke trail 3. pyrotechnic lights? 	<p>My position is indicated by . . .</p> <ol style="list-style-type: none"> 1. searchlight 2. black smoke trail 3. pyrotechnic lights.
QUR*	<p>Have survivors . . .</p> <ol style="list-style-type: none"> 1. received survival equipment 2. been picked up by rescue vessel 3. been reached by ground rescue party? 	<p>Survivors . . .</p> <ol style="list-style-type: none"> 1. are in possession of survival equipment dropped by . . . 2. have been picked up by rescue vessel 3. have been reached by ground rescue party.
QUS*	Have you sighted survivors or wreckage? If so, in what position?	<p>Have sighted</p> <ol style="list-style-type: none"> 1. survivors in water 2. survivors on rafts 3. wreckage <p>in position . . . latitude . . . longitude (or according to any other indication).</p>

App. 2]

Abbreviation	Question	Answer or Advice
QUT*	Is position of incident marked?	Position of incident is marked by <ul style="list-style-type: none"> 1. flame or smoke float 2. sea marker 3. sea marker dye 4. . . . (specify other marking).
QUU*	Shall I home ship or aircraft to my position?	Home ship or aircraft . . . (name and/or call sign) . . . <ul style="list-style-type: none"> 1. to your position by sending your call sign and long dashed on . . . kHz (or MHz). 2. by sending on . . . kHz (or MHz) TRUE track to reach you.
QUW*	Are you in the search area designated as . . . (designator or latitude and longitude)?	I am in the . . . (designation) search area.
QUX	Do you have any navigational warnings or gale warnings in force?	I have the following navigational warning(s) or gale warning(s) in force . . .
QUY*	Is position of survival craft marked?	Position of survival craft was marked at . . . hours by . . . <ul style="list-style-type: none"> 1. flame of smoke float 2. sea marker 3. sea marker dye 4. . . . (specify other marking).
QUZ	May I resume restricted working?	Distress phase still in force, restricted working may be resumed.

B. List of Signals according to the Nature of Questions, Answer or Advice

Abbreviation	Question	Answer or Advice
QRA	Name What is the name of your vessel (or station)?	The name of my vessel (or station) is . . .
QRD	Route Where are you bound for and where are you from?	I am bound for . . . from . . .
QRB	Position How far approximately are you from my station?	The approximate distance between our stations is . . . nautical miles (or kilometres).
QTH	What is your position in latitude and longitude (or according to any other indication)?	My position is . . . latitude . . . longitude (or according to any other indication).
QTN	At what time did you depart from . . . (place)?	I departed from . . . (place) at . . . hours.
QOF	Quality of Signals What is the commercial quality of my signals?	The quality of your signals is . . . <ol style="list-style-type: none"> 1. not commercial 2. marginally commercial 3. commercial.
QRI	How is the tone of my transmission?	The tone of your transmission is . . . <ol style="list-style-type: none"> 1. good 2. variable 3. bad.
QRK	What is the intelligibility of my signals (or those of . . . (name and/or call sign))?	The intelligibility of your signals (or those of . . . (name and/or call sign)) is . . . <ol style="list-style-type: none"> 1. bad 2. poor 3. fair 4. good 5. excellent.
QRO	Strength of Signals Shall I increase transmitter power?	Increase transmitter power.
QRP	Shall I decrease transmitter power?	Decrease transmitter power.
QSA	What is the strength of my signals (or those of . . . (name and/or call sign))?	The strength of your signals (or those of . . . (name and/or call sign)) is . . . <ol style="list-style-type: none"> 1. scarcely perceptible 2. weak 3. fairly good 4. good 5. very good.

App. 2]

Abbreviation	Question	Answer or Advice
QSB	Strength of Signals (cont.) Are my signals fading?	Your signals are fading.
QRQ	Keying Shall I send faster?	Send faster (. . . words per minute).
QRR	Are you ready for automatic operation?	I am ready for automatic operation. Send at . . . words per minute.
QRS	Shall I send more slowly?	Send more slowly (. . . words per minute).
QSD	Are my signals mutilated?	Your signals are mutilated.
QRM	Interference Is my transmission being interfered with?	Your transmission is being interfered with . . . (1. nil 2. slightly 3. moderately 4. severely 5. extremely).
QRN	Are you troubled by static?	I am troubled by static . . . (1. nil 2. slightly 3. moderately 4. severely 5. extremely).
QRG	Adjustment of Frequency Will you tell me my exact frequency (or that of . . .)?	Your exact frequency (or that of . . .) is . . . kHz (or MHz).
QRH	Does my frequency vary?	Your frequency varies.
QTS	Will you send your call sign (and/or name) for . . . seconds?	I will send my call sign (and/or name) for . . . seconds.
QSN	Choice of Frequency and/or Class of Emission Did you hear me (or . . . (name and/or call sign)) on . . . kHz (or MHz)?	I did hear you (or . . . (name and/or call sign)) on . . . kHz (or MHz).
QSS	What working frequency will you use?	I will use the working frequency . . . kHz (or MHz) (in the high frequency bands normally only the last three figures of the frequency need be given).
QSU	Shall I send or reply on this frequency (or on . . . kHz (or MHz)) (with emissions of class . . .)?	Send or reply on this frequency (or on . . . kHz (or MHz)) (with emissions of class . . .).
QSV	Shall I send a series of V's (or signs) for adjustment on this frequency (or . . . kHz (or MHz))?	Send a series of V's (or signs) for adjustment on this frequency (or . . . kHz (or MHz)).

Abbreviation	Question	Answer or Advice
QSW	Choice of Frequency and/or Class of Emission (cont.) Will you send on this frequency (<i>or</i> on . . . kHz (<i>or</i> MHz)) (with emissions of class . . .)?	I am going to send on this frequency (<i>or</i> on . . . kHz (<i>or</i> MHz)) (with emissions of class . . .).
QSX	Will you listen to . . . (<i>name and/or call sign(s)</i>) on . . . kHz (<i>or</i> MHz), <i>or</i> in the bands . . ., channels . . .?	I am listening to . . . (<i>name and/or call sign(s)</i>) on . . . kHz (<i>or</i> MHz), <i>or</i> in the bands . . ./channels . . .
QSY	Change of Frequency Shall I change to transmission on another frequency?	Change to transmission on another frequency (<i>or</i> on . . . kHz (<i>or</i> MHz)).
QOA	Establishing Communication Can you communicate by radiotelegraphy (500 kHz)?	I can communicate by radiotelegraphy (500 kHz).
QOB	Can you communicate by radiotelephony (2182 kHz)?	I can communicate by radiotelephony (2182 kHz).
QOC	Can you communicate by radiotelephony (Channel 16—frequency 156.80 MHz)?	I can communicate by radiotelephony (Channel 16—frequency 156.80 MHz).
QOD	Can you communicate with me in 0. Dutch 5. Italian 1. English 6. Japanese 2. French 7. Norwegian 3. German 8. Russian 4. Greek 9. Spanish?	I can communicate with you in 0. Dutch 5. Italian 1. English 6. Japanese 2. French 7. Norwegian 3. German 8. Russian 4. Greek 9. Spanish.
QOT	Do you hear my call; what is the approximate delay in minutes before we may exchange traffic?	I hear your call; the approximate delay is . . . minutes.
QRL	Are you busy?	I am busy (<i>or</i> I am busy with . . . (<i>name and/or call sign</i>)). Please do not interfere.
QRV	Are you ready?	I am ready.
QRX	When will you call me again?	I will call you again at . . . hours (on . . . kHz (<i>or</i> MHz)).
QRY	What is my turn? (<i>Relates to communication.</i>)	Your turn is Number . . . (<i>or according to any other indication.</i>) (<i>Relates to communication.</i>)
QRZ	Who is calling me?	You are being called by . . . (on . . . kHz (<i>or</i> MHz)).
QSC	Are you a low traffic ship station?	I am a low traffic ship station.

Abbreviation	Question	Answer or Advice
QSR	Establishing Communication (cont.) Shall I repeat the call on the calling frequency?	Repeat your call on the calling frequency; did not hear you (or have interference).
QTQ	Can you communicate with my station by means of the International Code of Signals (INTERCO)?	I am going to communicate with your station by means of the International Code of Signals (INTERCO).
QUE	Can you speak in . . . (<i>language</i>), with interpreter if necessary: if so, on what frequencies?	I can speak in . . . (<i>language</i>) on . . . kHz (or MHz).
QOL	Selective Calls Is your vessel fitted for reception of selective calls? If so, what is your selective call number or signal?	My vessel is fitted for the reception of selective calls. My selective call number is . . .
QOM	On what frequencies can your vessel be reached by a selective call?	My vessel can be reached by a selective call on the following frequency/ies . . . (<i>periods of time to be added if necessary</i>).
QTR	Time What is the correct time?	The correct time is . . . hours.
QTU	What are the hours during which your station is open?	My station is open from . . . to . . . hours.
QRC	Charges By what private enterprise (or State Administration) are the accounts for charges for your station settled?	The accounts for charges of my station are settled by the private enterprise . . . (or State Administration).
QSJ	What is the charge to be collected to . . . including your internal charge?	The charge to be collected to . . . including my internal charge is . . . francs.
QRW	Transit Shall I inform . . . that you are calling him on . . . kHz (or MHz)?	Please inform . . . that I am calling him on . . . kHz (or MHz).
QSO	Can you communicate with . . . (<i>name and/or call sign</i>) direct (or by relay)?	I can communicate with . . . (<i>name and/or call sign</i>) direct (or by relay through . . .).
QSP	Will you relay to . . . (<i>name and/or call sign</i>) free of charge?	I will relay to . . . (<i>name and/or call sign</i>) free of charge.
QSQ	Have you a doctor on board (or is . . . (<i>name of person</i>) on board)?	I have a doctor on board (or . . . (<i>name of person</i>) is on board).
QUA	Have you news of . . . (<i>name and/or call sign</i>)?	Here is news of . . . (<i>name and/or call sign</i>).

Abbreviation	Question	Answer or Advice
QUC	<p>Transit (cont.) What is the number (<i>or other indication</i>) of the last message you received from me (<i>or from . . . (name and/or call sign)</i>)?</p>	The number (<i>or other indication</i>) of the last message I received from you (<i>or from . . . (name and/or call sign)</i>) is . . .
QOG	<p>Exchange of Correspondence How many tapes have you to send?</p>	I have . . . tapes to send.
QOH	Shall I send a phasing signal for . . . seconds?	Send a phasing signal for . . . seconds.
QOI	Shall I send my tape?	Send your tape.
QRJ	How many radiotelephone calls have you to book?	I have . . . radiotelephone calls to book.
QRU	Have you anything for me?	I have nothing for you.
QSG	Shall I send . . . telegrams at a time?	Send . . . telegrams at a time.
QSI		I have been unable to break in on your transmission. <i>or</i> Will you inform . . . (<i>name and/or call sign</i>) that I have been unable to break in on his transmission (on . . . kHz (<i>or</i> MHz)).
QSK	Can you hear me between your signals and if so may I break in on your transmission?	I can hear you between my signals; break in on my transmission.
QSL	Can you acknowledge receipt?	I am acknowledging receipt.
QSM	Shall I repeat the last telegram which I sent you (<i>or</i> some previous telegram)?	Repeat the last telegram which you sent me (<i>or</i> telegram(s) number(s) . . .).
QSZ	Shall I send each word or group more than once?	Send each word or group twice (<i>or</i> . . . times).
QTA	Shall I cancel telegram (<i>or message</i>) number . . . ?	Cancel telegram (<i>or message</i>) number . . .
QTB	Do you agree with my counting of words?	I do not agree with your counting of words; I will repeat the first letter or digit of each word or group.
QTC	How many telegrams have you to send?	I have . . . telegrams for you (<i>or for . . . (name and/or call sign)</i>).
QTV	Shall I stand guard for you on the frequency of . . . kHz (<i>or</i> MHz) (from . . . to . . . hours)?	Stand guard for me on the frequency of . . . kHz (<i>or</i> MHz) (from . . . to . . . hours).

Abbreviation	Question	Answer or Advice
QTX	Exchange of Correspondence (cont.) Will you keep your station open for further communication with me until further notice (or until . . . hours)?	I will keep my station open for further communication with you until further notice (or until . . . hours).
QRE	Movement What is your estimated time of arrival at . . . (or over . . .) (place)?	My estimated time of arrival at . . . (or over . . .) (place) is . . . hours.
QRF	Are you returning to . . . (place)?	I am returning to . . . (place). <i>or</i> Return to . . . (place).
QSH	Are you able to home with your direction-finding equipment?	I am able to home with my direction-finding equipment (on . . . (name and/or call sign)).
QT* QTJ*	What is your TRUE course? What is your speed? <i>(Requests the speed of a ship or aircraft through the water or air respectively.)</i>	My TRUE course is . . . degrees. My speed is . . . knots (or . . . kilometres per hour or . . . statute miles per hour). <i>(Indicates the speed of a ship or aircraft through the water or air respectively.)</i>
QTK*	What is the speed of your aircraft in relation to the surface of the earth?	The speed of my aircraft in relation to the surface of the earth is . . . knots (or . . . kilometres per hour or . . . statute miles per hour).
QTL*	What is your TRUE heading?	My TRUE heading is . . . degrees.
QTM*	What is your MAGNETIC heading?	My MAGNETIC heading is . . . degrees.
QTN	At what time did you depart from . . . (place)?	I departed from . . . (place) at . . . hours.
QTO	Have you left dock (or port)? or Are you airborne?	I have left dock (or port). <i>or</i> I am airborne.
QTP	Are you going to enter dock (or port)? or Are you going to alight (or land)?	I am going to enter dock (or port). <i>or</i> I am going to alight (or land).
QUN	1. <i>When directed to all stations:</i> Will vessels in my immediate vicinity . . . or (in the vicinity of . . . latitude . . . longitude) or (in the vicinity of . . .) please indicate their position, TRUE course and speed?	My position, TRUE course and speed are . . .

Abbreviation	Question	Answer or Advice
	Movement (cont.) 2. <i>When directed to a single station:</i> Please indicate your position, TRUE course and speed?	My position, TRUE course and speed are . . .
QUB*	Meteorology Can you give me in the following order information concerning: the direction in degrees TRUE and speed of the surface wind; visibility; present weather; and amount, type and height of base of cloud above surface elevation at . . . (place of observation)?	Here is the information requested: <i>(The units used for speed and distances should be indicated.)</i>
QUH*	Will you give me the present barometric pressure at sea level?	The present barometric pressure at sea level is . . . (units).
QUX	Do you have any navigational warnings or gale warnings in force?	I have the following navigational warning(s) or gale warning(s) in force . . .
QTE	Radio Direction-Finding What is my TRUE bearing from you? <i>or</i> What is my TRUE bearing from . . . (name and/or call sign)? <i>or</i> What is the TRUE bearing of . . . (name and/or call sign) from . . . (name and/or call sign)?	Your TRUE bearing from me is . . . degrees at . . . hours. <i>or</i> Your TRUE bearing from . . . (name and/or call sign) was . . . degrees at . . . hours. <i>or</i> The TRUE bearing of . . . (name and/or call sign) from . . . (name and/or call sign) was . . . degrees at . . . hours.
QTF	Will you give me my position according to the bearings taken by the direction-finding stations which you control?	Your position according to the bearings taken by the direction-finding stations which I control was . . . latitude . . . longitude (or other indication of position), class . . . at . . . hours.
QTG	Will you send two dashes of ten seconds each (or carrier) followed by your call sign (or name) (repeated . . . times) (on . . . kHz (or MHz))? <i>or</i> Will you request . . . (name and/or call sign) to send two dashes of ten seconds each (or carrier) followed by his call sign (and/or name) (repeated . . . times) on . . . kHz (or MHz)?	I am going to send two dashes of ten seconds each (or carrier) followed by my call sign (or name) (repeated . . . times) (on . . . kHz (or MHz)). <i>or</i> I have requested . . . (name and/or call sign) to send two dashes of ten seconds each (or carrier) followed by his call sign (and/or name) (repeated . . . times) on . . . kHz (or MHz).

Abbreviation	Question	Answer or Advice
QRT	Suspension of Work Shall I stop sending?	Stop sending.
QUM	May I resume normal working?	Normal working may be resumed.
QUZ	May I resume restricted working?	Distress phase still in force, restricted working may be resumed.
QOE	Safety Have you received the safety signal sent by . . . (name and/or call sign)?	I have received the safety signal sent by . . . (name and/or call sign).
QUX	Do you have any navigational warnings or gale warnings in force?	I have the following navigational warning(s) or gale warning(s) in force . . .
QUD	Urgency Have you received the urgency signal sent by . . . (name and/or call sign)?	I have received the urgency signal sent by . . . (name and/or call sign) at . . . hours.
QOJ	Distress Will you listen on . . . kHz (or MHz) for signals of emergency position-indication radiobeacons?	I am listening on . . . kHz (or MHz) for signals of emergency position-indicating radiobeacons.
QOK	Have you received the signals of an emergency position-indicating radiobeacon on . . . kHz (or MHz)?	I have received the signals of an emergency position-indicating radiobeacon on . . . kHz (or MHz).
QUF	Have you received the distress signal sent by . . . (name and/or call sign)?	I have received the distress signal sent by . . . (name and/or call sign) at . . . hours.
QUM	May I resume normal working?	Normal working may be resumed.
QUZ	May I resume restricted working?	Distress phase still in force, restricted working may be resumed.
QSE*	Search and Rescue What is the estimated drift of the survival craft?	The estimated drift of the survival craft is . . . (figures and units).
QSF*	Have you effected rescue?	I have effected rescue and am proceeding to . . . base (with . . . persons injured requiring ambulance).
QTD*	What has the rescue vessel or rescue aircraft recovered?	. . . (identification) has recovered . . . 1. . . (number) survivors 2. wreckage 3. . . (number) bodies.
QTW*	What is the condition of survivors?	Survivors are in . . . condition and urgently need . . .

Abbreviation	Question	Answer or Advice
QTY*	Search and Rescue (cont.) Are you proceeding to the position of incident and if so when do you expect to arrive?	I am proceeding to the position of incident and expect to arrive at . . . hours (on . . . date).
QTZ*	Are you continuing the search?	I am continuing the search for . . . (aircraft, ship, survival craft, survivors or wreckage).
QUN	1. <i>When directed to all stations:</i> Will vessels in my immediate vicinity . . . or (in the vicinity of . . . latitude . . . longitude) or (in the vicinity of . . .) please indicate their position, TRUE course and speed? 2. <i>When directed to a single station:</i> Please indicate your position, TRUE course and speed?	My position, TRUE course and speed are . . .
QUO*	Shall I search for . . . <ol style="list-style-type: none"> 1. aircraft 2. ship 3. survival craft in the vicinity of . . . latitude . . . longitude (or according to any other indication)?	Please search for . . . <ol style="list-style-type: none"> 1. aircraft 2. ship 3. survival craft in the vicinity of . . . latitude . . . longitude (or according to any other indication).
QUP*	Will you indicate your position by . . . <ol style="list-style-type: none"> 1. searchlight 2. black smoke trail 3. pyrotechnic lights? 	My position is indicated by . . . <ol style="list-style-type: none"> 1. searchlight 2. black smoke trail 3. pyrotechnic lights.
QUR*	Have survivors . . . <ol style="list-style-type: none"> 1. received survival equipment 2. been picked up by rescue vessel 3. been reached by ground rescue party? 	Survivors . . . <ol style="list-style-type: none"> 1. are in possession of survival equipment dropped by . . . 2. have been picked up by rescue vessel 3. have been reached by ground rescue party.
QUS*	Have you sighted survivors or wreckage? If so, in what position?	Have sighted . . . <ol style="list-style-type: none"> 1. survivors in water 2. survivors on rafts 3. wreckage in position . . . latitude . . . longitude (or according to any other indication).
QUT*	Is position of incident marked?	Position of incident is marked by <ol style="list-style-type: none"> 1. flame or smoke float 2. sea marker 3. sea marker dye 4. . . . (specify other marking).

App. 2]

Abbreviation	Question	Answer or Advice
QUU*	Search and Rescue (cont.) Shall I home ship or aircraft to my position?	Home ship or aircraft . . . (name and/or call sign) . . . <ol style="list-style-type: none"> 1. to your position by sending your call sign and long dashes on . . . kHz (or MHz) 2. by sending on . . . kHz (or MHz) TRUE track to reach you.
QUW*	Are you in the search area designated as . . . (designator or latitude and longitude)?	I am in the . . . (designation) search area.
QUY*	Is position of survival craft marked?	Position of survival craft was marked at . . . hours by . . . <ol style="list-style-type: none"> 1. flame or smoke float 2. sea marker 3. sea marker dye 4. . . . (specify other marking).
QUZ	May I resume restricted working?	Distress phase still in force, restricted working may be resumed.
QTT	Identification	
		The identification signal which follows is superimposed on another transmission.

PART II. MISCELLANEOUS ABBREVIATIONS AND SIGNALS

Abbreviation or Signal	Definition
AA	All after . . . (used after a question mark in radiotelegraphy or after RQ in radiotelephony (in case of language difficulties) or after RPT, to request a repetition).
AB	All before . . . (used after a question mark in radiotelegraphy or after RQ in radiotelephony (in case of language difficulties) or after RPT to request a repetition).
ADS	Address (used after a question mark in radiotelegraphy or after RQ in radiotelephony (in case of language difficulties) or after RPT, to request a repetition).
AR	End of transmission.
AS	Waiting period.
BK	Signal used to interrupt a transmission in progress.
BN	All between . . . and . . . (used after a question mark in radiotelegraphy or after RQ in radiotelephony (in case of language difficulties) or after RPT, to request a repetition).
BQ	A reply to an RQ.
BT	Signal to mark the separation between different parts of the same transmission.
C	Yes or "The significance of the previous group should be read in the affirmative".
CFM	Confirm (or I confirm).
CL	I am closing my station.
COL	Collate (or I collate).
CORRECTION	Cancel my last word or group. The correct word or group follows (used in radiotelephony, spoken as KOR-REK-SHUN).
CP	General call to two or more specified stations (see Section 96).
CQ	General call to all stations.
CS	Call sign (used to request a call sign).
DE	"from . . ." (used to precede the name or other identification of the calling station—).
DF	Your bearing at . . . hours was . . . degrees, in the doubtful sector of this station, with a possible error of . . . degrees.

Note: When used in radiotelegraphy a bar over the letters composing a signal denotes that the letters are to be sent as one signal.

App. 2]

Abbreviation or Signal	Definition
DO	Bearing doubtful. Ask for another bearing later (<i>or at . . . hours</i>).
E	East (Cardinal point).
ETA	Estimated time of arrival.
INTERCO	International Code of Signals groups follow (<i>used in radiotelephony, spoken as IN-TER-CO</i>).
K	Invitation to transmit.
KA	Starting signal.
KTS	Nautical miles per hour (<i>Knots</i>).
MIN	Minute (<i>or Minutes</i>).
MSG	Prefix indicating a message to or from the master of a ship concerning its operation or navigation.
N	North (Cardinal point).
NIL	I have nothing to send to you.
NO	No (<i>negative</i>).
NW	Now.
NX	Notice to Mariners (<i>or Notice to Mariners follows</i>).
OK	We agree (<i>or It is correct</i>).
OL	Ocean Letter.
P	Prefix indicating a private radiotelegram.
PBL	Preamble (<i>used after a question mark in radiotelegraphy or after RQ in radiotelephony (in case of language difficulties) or after RPT, to request a repetition</i>).
PSE	Please.
R	Received.
REF	Reference to . . . (<i>or Refer to . . .</i>).
RPT	Repeat (<i>or I repeat</i>) (<i>or Repeat . . .</i>).
RQ	Indication of a request.
S	South (Cardinal point).
SIG	Signature (<i>used after a question mark in radiotelegraphy or after RQ in radiotelephony (in case of language difficulties) or after RPT, to request a repetition</i>).
SLT	Radiomaritime Letter.

Abbreviation or Signal	Definition
SVC	Prefix indicating a service telegram.
SYS	Refer to your service telegram.
TFC	Traffic.
TR	Used by a land station to request the position and next port of call of a mobile station (see Sections 102 and 156); used also as a prefix to the reply.
TU	Thank you.
TXT	<i>Text (used after a question mark in radiotelegraphy or after RQ in radiotelephony (in case of language difficulties) or after RPT, to request a repetition).</i>
<u>VA</u>	End of work.
W	West (Cardinal point).
WA	<i>Word after . . . (used after a question mark in radiotelegraphy or after RQ in radiotelephony (in case of language difficulties) or after RPT, to request a repetition).</i>
WD	Word(s) or Group(s).
WX	Weather report (or Weather report follows).
XQ	Prefix used to indicate the transmission of a service note.
YZ	The words which follow are in plain language.

PART III. PHONETIC ALPHABET AND FIGURE CODE

1. When it is necessary to spell out call signs, service abbreviations and words, the following letter spelling table shall be used:

Letter to be transmitted	Word to be used	Spoken as*
A	Alfa	<u>AL</u> FAH
B	Bravo	<u>BRAH</u> VOH
C	Charlie	<u>CHAR</u> LEE or <u>SHAR</u> LEE
D	Delta	<u>DELL</u> TAH
E	Echo	<u>ECK</u> OH
F	Foxtrot	<u>FOKS</u> TROT
G	Golf	GOLF
H	Hotel	HOH <u>TELL</u>
I	India	<u>IN</u> DEE AH
J	Juliett	<u>JEW</u> LEE <u>ETT</u>
K	Kilo	<u>KEY</u> LOH
L	Lima	<u>LEE</u> MAH
M	Mike	MIKE
N	November	NO <u>VEM</u> BER
O	Oscar	<u>OSS</u> CAH
P	Papa	PAH <u>PAH</u>
Q	Quebec	KEH <u>BECK</u>

*The syllables to be emphasised are underlined.

Letter to be transmitted	Word to be used	Spoken as*
R	Romeo	<u>ROW</u> ME OH
S	Sierra	<u>SEE</u> <u>AIR</u> RAH
T	Tango	<u>TANG</u> GO
U	Uniform	<u>YOU</u> NEE FORM or OO NEE FORM
V	Victor	<u>VIK</u> TAH
W	Whiskey	<u>WISS</u> KEY
X	X-ray	<u>ECKS</u> RAY
Y	Yankee	<u>YANG</u> KEY
Z	Zulu	<u>ZOO</u> LOO

2. When it is necessary to spell out figures or marks, the following table shall be used:

Figure or mark to be transmitted	Code word to be used	Spoken as†
0	NADAZERO	NAH-DAH-ZAY-ROH
1	UNAONE	OO-NAH-WUN
2	BISSOTWO	BEES-SOH-TOO
3	TERRATHREE	TAY-RAH-TREE
4	KARTEFOUR	KAR-TAY-FOWER
5	PANTAFIVE	PAN-TAH-FIVE
6	SOXISIX	SOK-SEE-SIX
7	SETTESEVEN	SAY-TAY-SEVEN
8	OKTOEIGHT	OK-TOH-AIT
9	NOVENINE	NO-VAY-NINER
Decimal point	DECIMAL	DAY-SEE-MAL
Full stop	STOP	STOP

3. However, stations of the same country, when communicating between themselves, may use any other table recognised by their administration.

*The syllables to be emphasised are underlined.

†Each syllable should be equally emphasised.

APPENDIX 3

Hours of Service for Ships in the Second, Third and Fourth Categories

PART 1—HOURS OF SERVICE (SHIP'S TIME)

Ship stations of the second category (H16) shall maintain the following hours of service:

0000–0400
0800–1200
1600–1800
2000–2200

and, additionally, four hours of service at times to be decided by the administration, master or responsible person, to meet the essential communication needs of the ship having regard to propagation conditions and traffic requirements.

Ship stations of the third category (H8) shall maintain the following hours of service:

0800–1200,

two continuous hours of service between 1800–2200 hours at times decided by the administration, master or responsible person and, additionally, two hours of service at times decided by the administration, master or responsible person, to meet the essential communication needs of the ship having regard to propagation conditions and traffic requirements.

Ship stations of the fourth category (Hx) are encouraged to provide service from 0830 to 0930 hours.

PART 2—DIAGRAM

This diagram indicates the *fixed* and *elected* hours of service maintained by ships of the second and third categories in terms of zone time. (The hours of service shown exclude those which are determined by the administration, master, or responsible person.)

The *fixed* hours of watch are shown thus:

(I) for ships of the second category:



(II) for ships of the second and third categories:



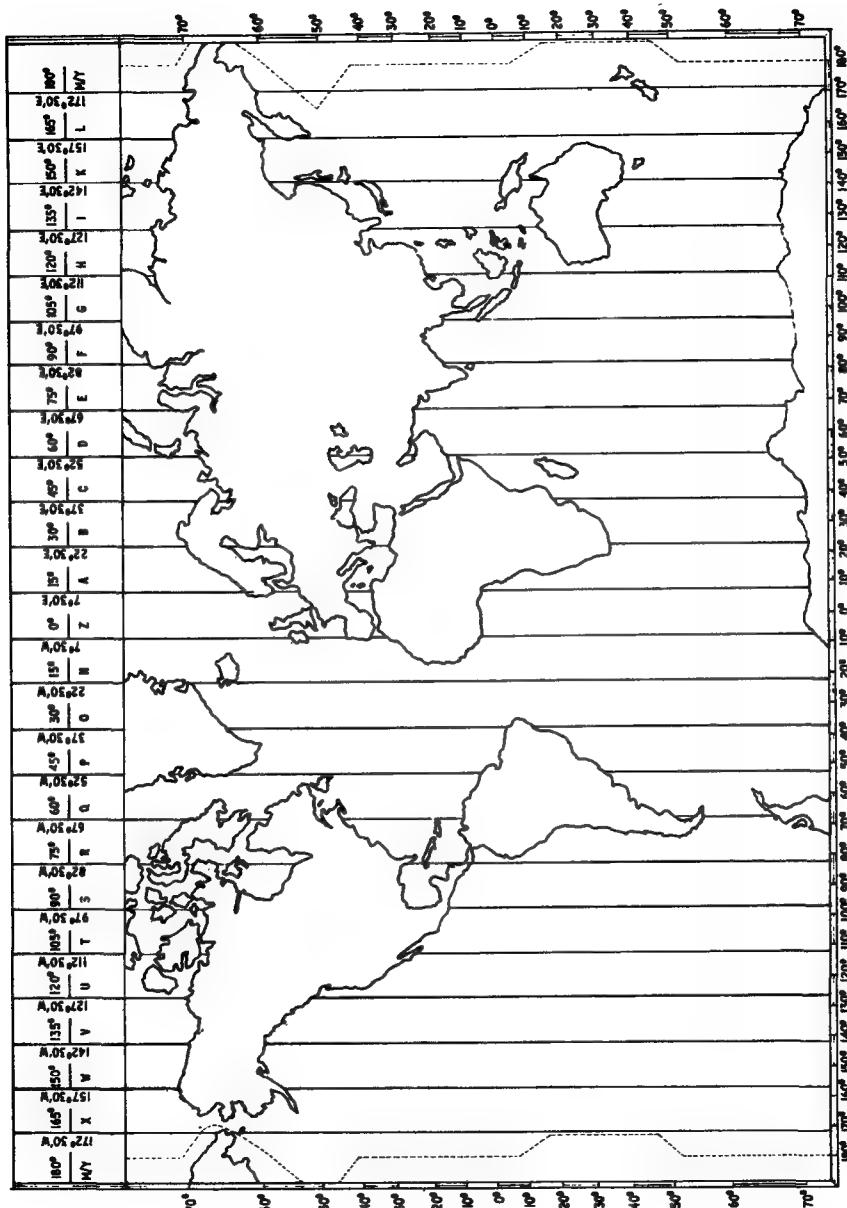
(III) for ships of the third category, period over which two continuous hours of service may be elected:



Also shown are the specific service periods 0830–0930 that ships of the fourth category are encouraged to provide.

App. 3]

ZONES AND HOURS OF SERVICE OF SHIP STATIONS.



ZONES AND HOURS OF SERVICE OF SHIP STATIONS OF THE SECOND AND THIRD CATEGORIES

APPENDIX 4

Examinations for the Certificates of Competence in Radiocommunication, Radiotelegraphy and Radiotelephony Issued by the Home Office

1. General Regulations

- (1) (a) Although there are four categories of certificates for radiotelegraph operators listed in the International Radio Regulations, only two of these are now issued in the United Kingdom, namely:
 - (i) the Maritime Radiocommunication General Certificate, and
 - (ii) the Radiotelegraph Operators' Special Certificate. Examinations for the First and Second Class Radiotelegraph Operators' Certificates ceased in March 1972. However, certificates of these classes will remain valid subject to the requirements of the International Radio Regulations and the relevant Merchant Shipping (Radio) Rules.
- (b) There are two certificates of competence in radiotelephony, viz., the Restricted and the General.
- (2) All communications concerning examinations should be addressed to the External Telecommunications Executive, Maritime Radio Services Division, Examination Duty, Union House, St. Martin's-le-Grand, London, EC1A 1AR.
- (3) Examinations for the Maritime Radiocommunication General and Radiotelegraphy Special Certificates are conducted at colleges where apparatus and examination facilities have been approved by the Secretary of State for Home Affairs, Home Office, as suitable for the purpose.
- (4) Examinations for the Restricted Certificate in radiotelephony are normally conducted on board suitably equipped ships and at the address shown in (2) but may exceptionally be conducted at marine radio colleges. Examinations for the General Certificate in radiotelephony are normally conducted at marine radio colleges and at the address shown in (2) but may exceptionally be conducted on suitably equipped British ships.

(5) Application forms and particulars of fees payable may be obtained from the address shown in (2) or, in the case of the radiotelephony certificate examinations, from radio surveyors at the major sea ports. Application forms are normally held by the Principals of marine radio colleges for the benefit of their own students. Fees should be paid by crossed cheque, Giro, postal order or money order made payable to "The Post Office".

(6) A list of the names and addresses of colleges at which examinations are held may be obtained from the address shown in paragraph (2).

2. The Maritime Radiocommunication General Certificate

(1) The certificate states that the holder has given proof, by written and practical examination, of the technical and professional knowledge and qualifications enumerated below:

- (a) Knowledge of the principles of electricity and the theory of radio and electronics sufficient to meet the requirements of paragraphs (b), (c) and (d) below.
- (b) Theoretical knowledge of modern radiocommunication equipment including marine radiotelegraph and radio-telephone transmitters and receivers, marine aerial systems, automatic alarm devices, radio equipment for lifeboats and other survival craft, direction-finding equipment together with all auxiliary items including power supply (such as motors, generators, inverters, rectifiers and accumulators), as well as a general knowledge of the principles of other apparatus generally used for radio-navigation, with particular reference to maintaining the equipment in service.
- (c) Practical knowledge of the operation, adjustment and maintenance of the apparatus mentioned in paragraph (b) above, including the taking of direction-finding bearings and knowledge of the principles of the calibration of radio direction-finding apparatus.
- (d) Practical knowledge necessary for the location and remedying of faults (using appropriate testing equipment and tools) in the apparatus mentioned in paragraph (b) above which may occur during a voyage.
- (e) Ability to send correctly by hand and to receive correctly by ear, in the morse code, code groups at a speed of 16 groups a minute, and plain language text at a speed of 20 words a minute. Ability to send correctly and to receive correctly by radiotelephone.

- (f) Knowledge of the Regulations applying to radiocommunications, knowledge of the documents relating to charges for radiocommunications and knowledge of the provisions of the Convention for the Safety of Life at Sea which relate to radio.
- (g) A sufficient knowledge of world geography, especially the principal shipping and the most important telecommunications routes.

**EXAMINATION FOR THE MARITIME RADIOPHONIC
GENERAL CERTIFICATE**

(2) The examination is in two parts:

- (a) *PART I—THEORETICAL*, which consists of two papers:

**PAPER 1—FUNDAMENTALS OF ELECTRICITY
AND RADIOPHONIC COMMUNICATIONS**

PAPER 2—MARINE RADIOPHONIC COMMUNICATIONS

Paper 1 is divided into 2 parts. The first part (Part A) consists of 3 questions of which no more than 2 are to be answered. The time allocated to each question is 30 minutes.

The second part of the paper (Part B) consists of 24 short-answer type questions of which no more than 20 are to be answered. The time allocated to each question is 6 minutes. The total time allowed for this paper is 3 hours.

Paper 2 consists of 8 questions. No more than 6 questions are to be answered. The time allowed for this paper is 3 hours.

The questions in both these papers are based on the syllabuses given in detail in Section 5. Specimen papers are given in Section 6.

- (b) *PART II—PRACTICAL, MANIPULATIVE AND
REGULATIONS*

A candidate is required:

- (i) to show that he has a knowledge of the Regulations governing the exchange of radiocommunications, of the documents required to be carried by ship stations and those relative to the charges for radiocommunications, and a knowledge of the principal maritime navigation routes and of the more important telecommunications routes of the world.

The relevant test consists of a written paper of 10 questions for which 50 minutes are allowed. The questions are made up in the following way:

5 questions	Regulations and procedures taken from the Handbook for Radio Operators and Notices to Ship Wireless Stations but excluding distress, urgency, etc.
1 question	Counting and charging of radio-telegrams and use of list of cable charges.
3 questions	Use of ITU documents, List of Radiodetermination and Special Service Stations, List of Coast Stations, List of Ship Stations, List of Call Signs.
1 question	Geographical knowledge related to maritime routes and involving use of map of the world and ITU documents.

(See specimen paper 7(1).)

(ii) to show that he has a knowledge of the Regulations relating to distress, urgency and safety and that part of the Convention for the Safety of Life at Sea which relates to radiocommunications.

The relevant test consists of a written paper of 4 questions for which 10 minutes are allowed. One of these questions concerns the form and content of a distress message. (See specimen paper 7(2).)

(iii) to show he is able to understand the circuit diagrams of marine equipment.

The relevant test consists of a written paper of 10 questions for which one hour is allowed. One of these questions concerns an item of practical knowledge (e.g. safety precautions) and the remaining questions are related to circuit tracing, diagram interpretation, and prediction of effects of component failures. (See specimen paper 7(3).)

(iv) to demonstrate his ability to send and receive in the morse code.

The accuracy of signalling, the correct formation of characters and the correctness of spacing is taken into account. The legibility of the transcription is also considered. The relevant tests consist of sending and receiving plain language at 20 words a minute for 3 minutes, code groups at 16 words a minute for 3 minutes, figures at 10 groups a minute for one and a half minutes and a mixture of accented letters and punctuation marks at 8 groups a minute for one minute. Four errors are allowed in each of the plain language and code group tests and 2 errors are allowed in each of the figure and accented letters and punctuation marks tests. No uncorrected errors are permitted in the sending tests. Five letters of characters are counted as one word or group.

(v) to demonstrate his ability at watchkeeping, log keeping and the transmission and reception of radiotelegrams using radiotelegraphy.

A specially prepared tape-recording is used for the watchkeeping part of the relevant test taken by the candidate and he is expected to read morse signals through interference. He is also required to exchange messages with the examiner using maritime procedures. The test includes reception of signals connected with safety, urgency or distress, and the logging of all intercepted signals.

The duration of the test is under the control of the examiner and lasts approximately 45 minutes.

(vi) to demonstrate his ability in the sending and receiving of radiotelegrams using telephony and in keeping a radiotelephone log.

The relevant test is a practical one for which 10 minutes is allowed. It consists of sending and receiving radiotelegrams by telephone in accordance with radiotelephone procedures and the keeping of a radiotelephone log.

(vii) (a) Each candidate is also required to construct 2 items of equipment during the course of his studies in accordance with the workshop practice specification (see 8).

(b) to demonstrate his ability to solder typical radio components within radio circuits and to replace faulty components. The relevant test consists of

replacing two components within a piece of equipment provided. The time allowed is 20 minutes.

(viii) to demonstrate his ability to operate marine radio equipment and determine whether its performance is satisfactory.

The relevant test is a practical one for which 45 minutes is allowed. Each candidate is required to bring into operation and complete a record of performance for each of the following pieces of equipment:

transmitter;
reserve transmitter with automatic keying device;
man-powered portable transmitter/receiver;
automatic alarm;
main receiver;
reserve receiver;
direction finder;
VHF equipment.

The candidate is also required to check and assess the condition of the reserve battery.

(ix) to demonstrate his ability to locate faults in maritime radio equipment in a logical manner.

The test is a practical one for which 2 hours are allowed. It consists of tracing faults on 6 items of equipment. Each item of equipment will contain a single fault; the candidate is required to record its symptoms and the steps he takes in tracing it. He is not required to remedy the fault.

CONDITIONS OF EXAMINATION

(3) (a) For examination purposes a Part II examination is linked to the preceding Part I examination.

(b) A candidate must be successful in the Part I examination before attempting the Part II examination. The two Part I papers may, however, be attempted separately or together. Where the Part I papers are taken separately a candidate who achieves success in the first Part I paper must be successful in the second Part I paper at one of the three immediately subsequent Part I examination dates, failing which the success in the first Part I paper is invalid.

(c) A candidate who successfully completes the Part I examination requirement must achieve success in the Part II examination at one of the four Part II examination

dates immediately following the Part I examination completion date, failing which the whole of the Part I and Part II examinations must be retaken. A maximum of three attempts at the Part II examination is permitted.

- (d) Where the Part I examination papers are taken separately, a candidate who achieves success in the first Part I paper may, as a concession, attempt the Part II examination during the tour immediately preceding the examination date for which he is entered for the second Part I paper. This attempt at the Part II examination will count as one of the total of three attempts permitted under paragraph (c).
- (e) It is a condition of this concession that a candidate shall have completed 18 calendar months of a full-time course of study at college before a first attempt at the Part II examination.
- (f) Where a candidate attempts the Part I papers separately, a success in the Part II examination in the tour immediately preceding a failure attempt at the second Part I paper will remain valid for four Part II examination dates immediately following the second Part I paper examination date.
- (g) A successful candidate in the Part II examination who has not completed the Part I examination requirement at the second Part I examination date immediately subsequent to the Part II examination will be required to be re-tested in the "Watchkeeping and Communications" section of the Part II examination.
- (h) Success in a re-test does not extend the validity period of a success in the Part II examination, the validity period being as specified in paragraphs (c) and (f).
- (i) Candidates will not be re-examined in either Part I or Part II of the examination for the Maritime Radio-communication General Certificate within 3 months of a failure in the same Part and, will be examined only at the recognised official examination centres at the normally arranged dates for the individual colleges.

EXEMPTIONS FROM PART I OF THE EXAMINATION

- (4) (a) Students who pursue the City and Guilds Institute Course 292 for the Marine Radio and Radar Technicians Certificate, who have complied with the requirements for a 3 year full-time course of study and who have passed the

appropriate examinations will be granted exemption from the Home Office Maritime Radiocommunication General Certificate Part I examination. The Course 292 examination pass requirements are as follows:

Mathematics A, Telecommunications Principles A, B and C, Radio and Line Transmission A and B, Communications Radio C and Marine Radio.

(b) As a concession, the 3rd year exemption subjects Telecommunications Principles C and Communications Radio C may be taken together, or, alternatively, the Marine Radio paper only, may be taken toward the end of the second year course of study, i.e. in the June examination series in the case of a September intake, or, the December series in the case of a January intake. The final 3rd year exempting subject or subjects may be taken at the earliest in the following December examination series in the case of a September intake, or, in the following June examination series in the case of a January intake.

It is a condition of the concession that no other combination of the 3rd year papers may be taken at the end of the second year.

(c) Where a retrieval in the final 3rd year exempting examination(s) is necessary this must be obtained within 15 calendar months of the final 3rd year exempting examination date, for the exempting qualification as a whole to retain its validity.

(d) An exemption candidate must achieve success in the Part II examination at one of the four Part II examination dates immediately following the final 3rd year exempting examination date, whether or not he is successful in that examination. A maximum of three attempts at the Part II examination is permitted.

(e) As a concession, one of the total of three attempts at the Part II examination may be made during the tour immediately preceding the final 3rd year exempting examination date.

It is a condition of the concession that a candidate shall have completed 2 calendar years of a full-time course of study before a first attempt at the Part II examination.

(f) Where a candidate has achieved success in the Part II examination before retrieving a Part I exempting examination failure, he will be required to be re-tested in the

“Watchkeeping and Communications” section at every alternate Part II examination.

Success in a re-test does not extend the validity period of a success in the Part II examination, and the validity expires immediately the retrieval period, as specified in paragraph (c), terminates.

- (g) Before a Maritime Radiocommunication General Certificate will be issued to a successful exemption candidate, a Part I application form must be submitted giving details of the appropriate City and Guilds Institute exempting examination certificate numbers, dates and grades of passes, and should be signed by the Head of Department of the college to certify that the required 3 years full-time course of study has been satisfactorily fulfilled.
- (h) Exemption candidates who are holders of valid First or Second Class P.M.G. certificates are not required to take the practical tests in parts i, ii, iv, v, vi, vii(b) and viii of paragraph 2.(2)(b).

3. Special Certificate of Competence in Radiotelegraphy

(1) The Special Certificate states that the holder has been examined in radiotelegraphy and has passed in:

- (a) Knowledge of the adjustment and practical working of radiotelegraph and radiotelephone apparatus.
- (b) Sending by hand and receiving by ear in the morse code, messages in plain language at a speed of not less than twenty words a minute, and in code groups at a speed of not less than sixteen groups a minute.
- (c) Practical knowledge of radiotelephone operation and procedure.
- (d) Sending and receiving spoken messages correctly by telephone.
- (e) General knowledge of the regulations applying to the exchange of radiocommunications and particularly of that part of those regulations relating to the safety of life.

EXAMINATION FOR THE SPECIAL CERTIFICATE

(2) A candidate for the Special Certificate is required:

- (i) to show he has a knowledge of the Regulations governing the exchange of radiocommunications, of the documents required to be carried by ship stations.

The relevant test consists of a written paper of ten questions for which fifty minutes are allowed. The questions are made up in the following way:

5 questions	Regulations and procedures taken from the Handbook for Radio Operators and Notices to Ship Wireless Stations but excluding distress, urgency, etc.
1 question	Counting and charging of radio-telegrams and use of list of cable charges.
4 questions	Use of ITU documents with special reference to the North Atlantic, List of Radio determination and Special Service Stations, List of Coast Stations, List of Call Signs.

(ii) to show that he has a knowledge of the Regulations relating to distress, urgency and safety and that part of the Convention for the Safety of Life at Sea which relates to radiocommunications.

The relevant test consists of a written paper containing four questions for which ten minutes are allowed. One of these questions will always concern the form and content of a distress message.

(iii) to demonstrate his ability to send and receive in the Morse code. The accuracy of signalling, the correct formation of characters and the correctness of spacing is taken into account. The legibility of the transcription is also considered.

The relevant tests consist of sending and receiving plain language at twenty words a minute for three minutes, code groups at sixteen words a minute for three minutes and figures at ten groups a minute for one and a half minutes. Four errors are allowed in each of the plain language and code group tests and two errors are allowed in each of the figure tests. No uncorrected errors are permitted in the sending tests. Five letters or characters are counted as one word or group.

(iv) to demonstrate his ability at watchkeeping, log keeping and the transmission and reception of radiotelegrams using radiotelegraphy.

A specially prepared tape recording is used for the watch-keeping part of the relevant test. The candidate is required to keep a wireless log and exchange messages with the examiner using maritime procedures; he is expected to read morse signals through interference. The test includes reception of signals connected with safety, urgency or distress and the logging of all intercepted signals.

The duration of the test is under the control of the examiner and lasts approximately forty-five minutes.

(v) to demonstrate his ability in the sending and receiving of radiotelegrams using telephony and in keeping a radiotelephone log.

The relevant test is a practical one for which ten minutes are allowed. It consists of sending and receiving radiotelegrams by telephone in accordance with radiotelephone procedures and the keeping of a radiotelephone log.

(vi) to demonstrate his ability to replace faulty electronic components with soldered connections.

The relevant test consists of replacing two components within a piece of equipment provided. The time allowed is twenty minutes.

(vii) to demonstrate his ability to operate marine radio equipment and determine whether its performance is satisfactory.

The relevant test is a practical one for which forty-five minutes are allowed. Each candidate is required to bring into operation and complete a record of performance for each of the following pieces of equipment:

main transmitter;
reserve transmitter with automatic keying device;
man-powered portable transmitter/receiver;
automatic alarm;
main receiver;
reserve receiver;
direction finder;
VHF equipment.

The candidate is also required to check and assess the condition of the reserve battery.

(viii) to demonstrate his ability to locate and remedy simple faults in marine radio equipment.

The relevant test is a practical one for which forty-five minutes are allowed or it may be combined with the operational test (see (vii)) and the times aggregated. The

candidate is required to locate simple faults such as may occur with fuses, valves and aerial connections and to remedy such faults which may be set on any of the equipments listed in (vii) above. Candidates will also be asked verbal questions on the basic theory of these equipments.

CONDITIONS OF THE EXAMINATION

(3) Candidates who fail must wait at least six weeks before re-examination.

4. Re-Tests—Merchant Shipping (Radio) Rules 1965

- (a) Before being allowed to re-join as a radio officer in a ship that is compulsorily equipped with radio apparatus, the holder of a Maritime Radiocommunication General Certificate, P.M.G. 1st Class, 2nd Class or Special Certificate which is more than two years old is, under Rule 15 (2) of the Merchant Shipping (Radio) Rules 1965 and Rule 10 (3) of the Merchant Shipping (Radio) (Fishing Vessels) Rules 1974, required to satisfy the Home Office by re-examination or otherwise that he still possesses all the qualifications described in his certificate, if he has not had a total of three months experience, or, if his last experience was more than two years previously. The procedure is as follows:
- (b) (1) Where the holder has not had a total of three months experience, or,
 - (2) where the absence from sea is more than two years but less than six years, the applicant will be tested in:
 - (i) morse sending and receiving;
 - (ii) regulations, procedures and use of ITU documents (paper 50 mins.);
 - (iii) safety of life at sea (paper 10 mins.);
 - (iv) operation and performance of equipment (45 mins.).
- (c) Alternatively, in the case of (b) (2), the requirement may be satisfied by the holder gaining a further minimum period of six months sea service as a junior radio officer. The term junior radio officer refers to a radio officer who is not a requirement prescribed for the classes of vessel specified in the Merchant Shipping (Radio) Rules 1965, Rule 14 (1) and (2), or, in the Merchant Shipping (Radio) (Fishing Vessels) Rules 1974, Rule 9.(1).

(d) Where the absence from sea is more than six years the applicant will be tested in:

- (i) morse sending and receiving;
- (ii) regulations, procedures and use of ITU documents (paper 50 mins.);
- (iii) safety of life at sea (paper 10 mins.);
- (iv) watchkeeping and communications;
- (v) operation and performance of equipment (45 mins.);
- (vi) fault-finding and oral questions on marine equipment.*

The test will be conducted on modern marine equipment including s.s.b.

(e) For the purpose of these requirements the expression "experience" means experience as the operator of radiotelegraph apparatus:

- i. at sea, as a Radio Officer or Radiotelegraph Operator, or,
- ii. on land, as Radio Officer at a radiotelegraph station maintained on land by the Post Office for communication with ships.

Ex-radio officers who wish to return to the service and who would like advice about the tests should write to the Maritime Radio Services Division, Examinations Duty, Room 603, Union House, St. Martins-le-Grande, London, EC1A 1AR, the Senior Radio Surveyor, Department of Trade at any of the main ports, the Marconi International Marine Company Ltd., the International Marine Radio Company Ltd., or to the Radio and Electronics Officers' Union.

5. Syllabus for Theory Papers (Part 1)

(1) FUNDAMENTALS OF ELECTRICITY AND RADIOPHYSICS

ELECTRICITY

Calculations involving the application of Ohm's Law, Kirchhoff's Laws, the volt, ampere, ampere-hour, coulomb, Joule, ohm and watt in the solution of practical problems may be set in any part of the 1st or 2nd papers.

*Oral questions on marine equipment will be based on the Technical Practical Knowledge paper set in the M.R.G.C. certificate examination. The candidate has the option of answering the paper in writing if he so prefers.

Simple calculations on volume resistivity.
Qualitative effect of change of temperature on resistance.
Principles of action of fuses, circuit breakers and safety devices.
Know the commonly-used conductors and insulators and their important characteristics.
Insulation breakdown and the effect of moisture, fumes, and dirt on insulators.
Effect of moisture on components.
Resistors: symbols, particular uses and features of wire-wound, composition, variable, mat, non-linear, close tolerance and semi-conductor types.
Colour coding, tolerances, wattage ratings and preferred values.
Dry cells: characteristics of common types, care, and precautions.
Secondary cells: composition of plates and electrolyte of lead-acid and alkaline types; simple chemical action. Specific gravity and voltage curves over charge discharge periods; other visible indications of state of cells.
Internal resistance. Ampere-hour capacity and efficiency.
Typical faults, care and maintenance, including DEAC
Permaseal type. Charging circuits. Calculations.
Safety precautions.

ELECTROMAGNETISM

The magnetic effects of an electric current.
Characteristics and uses of "soft" and "hard" magnetic materials and ferrites.
Typical magnetisation curve. Hysteresis loops for soft and hard materials.
Magnetic flux, flux density and permeability.
Magneto-motive force, flux and reluctance.
Action of telephone type electromagnetic relay. Principle of polarised relays.
Use of quick-acting relays. Adjustments, maintenance, and common faults.

INDUCTANCE, INDUCTORS

Application of Faraday's Law of induction, Lenz's Law.
Self and mutual inductance as a change of flux linkage.
The Henry.
Inductors in series, with and without mutual inductance; inductors in parallel without mutual inductance. The variometer.

The rise and decay of currents in LR circuits. Time constant.

Energy stored in a magnetic field.

Sparking in inductive circuits; methods of suppression.

Eddy currents, descriptive treatment of h.f. resistance.

Eddy-current screening.

Inductors: essential characteristics of inductors for transmitters, receivers, power, audio and radio frequencies. Use of laminations, dust-cores, air cores and ferrites. Permeability tuning.

ELECTROSTATICS, CAPACITANCE AND CAPACITORS

Concept of electric field, equality of field strength with potential gradient, interference (crosstalk) due to electrostatic induction.

The basic capacitor. Energy stored. Permittivity.

Calculations on $Q = CV$, capacitors in series and parallel.

The rise and decay of voltage in CR circuits. Time constant.

Dielectric strength, breakdown voltage, absorption and losses.

Capacitors: symbols. Characteristics and uses of paper, ceramic, silvered mica, polystyrene, variable and preset, non-inductive, electrolytic, and tantalum types.

ELEMENTS OF COMMUNICATIONS

Graphical development of a sine wave from a rotating vector.

Mathematical representation. Relationship between frequency, velocity, wavelength and period.

Phase differences, the addition of sine waves of different frequencies, travelling and standing waves.

Graphical representation of amplitude modulation.

Calculations on depth of modulation; modulation factor. Overmodulation. Side frequencies, sidebands, and bandwidth.

Sound: intensity, pitch, frequency ranges of audibility, intelligible and commercial speech.

The decibel: calculations of power, voltage and current ratios.

Transducers: principles, action and characteristics of microphones, loudspeakers, and telephones (frequency range, impedance, typical uses).

Description and block diagrams of typical ship-shore radiotelephone links, including 2-wire and 4-wire connection. Simple hybrid coil. Essentials of singing, echo suppression, voice-controlled operation, speech inversion, and scrambling.

ALTERNATING CURRENT

Peak, instantaneous, r.m.s., and average values of sinusoidal and square waves.

Form factor. (See also Section 5.)

The solution of series and parallel circuits containing inductance, capacitance, and resistance by vector (phasor) diagrams, or by operator ' j '.

Power and power factor. The kVA and kVAR.

Low-loss series and parallel tuned circuits: Reactance/frequency and Impedance/frequency curves. Bandwidth and the 3dB points.

Calculations on frequency at resonance, neglecting resistance in the parallel case.

Calculations on the impedance at resonance, using dynamic impedance of the parallel circuit.

Response curves, including effect of Q and R. Half-power points. Bandwidth.

Selectivity.

Effects of tapping down tuned circuits.

Coupled circuits: Mutual inductive, series and shunt capacitance coupling.

Graphical representation of effect of primary on secondary response in mutually-coupled circuits.

Filters: Basic circuits and frequency/attenuation curves for low-pass, band-pass, band-stop and crystal filters.

Typical uses of filters.

TRANSFORMERS AND MACHINES

Voltage, current and power relationships in the ideal transformer.

Regulation and efficiency. Statement of iron loss as hysteresis and eddy current loss independent of loading, and copper loss proportional to power taken.

The transformer as a matching device: statement of maximum power theorem and distortion due to mismatching. Calculations on the ideal transformer.

The d.c. generator: principle, description of action, with principle of commutation. Interpoles as remedies for armature reaction and sparking. Importance of resistance of brushes. Statement that $e.m.f. = k \times \text{flux} \times \text{revolutions/minute}$.

Characteristics, regulation of shunt, series and compound-wound machines.

Method of voltage control.

The d.c. motor: motor principle; back e.m.f. and simple problems on useful power and power loss. Characteristics and typical uses of shunt, series and compound-wound machines.

Motor starters, including no-volt release and over-load release. Speed control of shunt-wound motors. Mechanical governors for d.c. motors.

Rotary convertors and rotary transformers as d.c. machines with slip rings or commutator outputs respectively.

Maintenance of machines.

A.C. Machines: Alternators: essentials of single-phase and 3-phase machines. Frequency and regulation.

The synchronous motor: description and action.

The three-phase induction motor: description and action. Slip and torque.

The single-phase induction motor: description and action.

Machines—typical uses of various types in marine installations.

Polyphase alternating currents and the production of rotating fields: the generation of 3-phase alternating currents; circuits of 3-phase, 4-wire system, star and delta connections for generators and loads; 3-phase transformers.

Relationships between line and phase currents for balanced loads.

SEMI-CONDUCTING DEVICES AND THERMIONIC VALVES

Thermionic, photo-electric, and secondary emission.

Conduction in semi-conducting materials and valves.

Semi-conductor diodes: action and electrical characteristics; symbols; types of device with their characteristics and uses.

The transistor: symbols, action, modes of connection, polarity and typical values of supplies. Static characteristic curves, amplification factors.

Dynamic characteristics and load lines. Definition of "h" parameters.

Function, typical uses and essential features of field effect transistors, photo-electric cells, and other semi-conducting devices. Integrated circuits.

Thermionic diodes; action and electrical characteristics.

Thermionic triodes: action, static and dynamic characteristics, load lines and parameters.

Other thermionic devices: function, typical uses, and essential features.

The Varactor: the basic function of the semi-conductor as a voltage controller capacitor and its applications.

METERS AND MEASUREMENTS

Moving coil instruments: action and principle of operation; use as multi-range voltmeter, ammeter and ohmmeter. Typical accuracy, sensitivity and limitations of multi-range instrument. The conversion of moving coil instruments for use on a.c.: the bridge rectifier; accuracy and limitations; thermo-couple instruments. Precautions in use, effect on current and voltage in circuits.

The "Megger" instrument.

The electronic voltmeter.

Essential characteristics and uses of: absorption wavermeter, heterodyne frequency meter, frequency counter, single generator and grid-dipmeter oscilloscope.

(2) MARINE RADIOCOMMUNICATIONS

POWER SUPPLIES

Single phase rectifier systems, voltage doubler, bridge rectifiers.

Three phase rectifier systems using star/star and delta/star connected transformers and including bridge rectifiers.

Smoothing circuits.

Stabilisers using:

- gas filled valves
- hard valves
- transistors
- zener diodes.

D.C. to a.c. conversion, the inverter.

Filter (to remove mains-borne interference).

AUDIO FREQUENCY AMPLIFIERS

The resistance loaded valve amplifier, methods of obtaining bias, gain, frequency response.

The resistance loaded transistor amplifier, methods of obtaining bias, d.c. stabilisation.

Reactive loads on amplifiers—frequency response.

Coupling: resistance capacity

 tuned choke capacity

 choke coupled

 direct coupling

 transformer coupling.

Power amplifiers Class A pushpull Class AB and B.

Cathode follower and emitter follower, phase splitters (split loads, etc.).

Negative feedback.

Gain control.

Compression and limiting, noise limiters.

Audio filters.

Decoupling and prevention of instability in audio amplifiers.

Miller effect and Miller valve.

RADIO FREQUENCY AMPLIFIERS

The tuned amplifier; gain, frequency response, linearity.

The transformer coupled amplifier; tuned anode/tuned grid.

The variable frequency amplifier.

The radio frequency power amplifier:

 Class A

 Class B AB

 Class C.

The pushpull amplifier.

The harmonic generator.

The amplifier controlled by a.g.c.

Limiters.

Grounded grid and cascode amplifier.

Fixed frequency amplifiers with particular band pass characteristics including crystal gates.

Wideband amplifiers.

Buffer amplifiers.

Filters.

Decoupling.

Prevention of parasitic oscillations.

Neutralisation.

Unilateralisation.

OSCILLATORS

The principle of the oscillator; factors determining frequency of oscillation; shunt and series feeds. The piezo electric effect of quartz.

R.F. oscillators:

Tuned grid, tuned anode, tuned grid-tuned anode,
Pierce, Hartley, Colpitts

Comparable transistor oscillators

Crystal control of oscillators

Two stage oscillators with feedback between stages

Stability (use of temperature and supplies control)

Reactance valve and oscillator control.

Audio oscillators:

Tuned anode, Hartley, Colpitts

RC phase shift, two stage with feedback between stages

Comparable transistor oscillators.

MODULATION, FREQUENCY CHANGING AND DETECTION**Amplitude modulators:**

Choke

Series

Grid.

The balanced modulator.

Ring bridge modulator (used for modulation and frequency changing).

Mixers:

Additive

Multiplicative.

Frequency modulators (Angle modulators):

Frequency

Phase.

Detectors:

Grid, anode bend, diode

Discriminators

Balanced demodulator.

Definitions, etc.:

S.S.B. with carrier and without

F.M.—deviation, modulation index.

PULSE CIRCUITS**Multivibrators:**

Freerunning

Bi-stable (Eccles Jordon)

Mono-stable (pulse shaper)
Trigger (Schmitt).

Gates:

Coincidence diodes
The transistor as a switch.
Clamping and d.c. restoration.

LOGIC AND LOGIC CIRCUITRY

Basic gates, AND, OR, NAND, NOR functions.

Logical 1 and Logical 0.

Positive and Negative Logic.

Inverted Logic.

Symbols and diagrams.

Types of Logic: D.L., D.T.L., T.T.L., D.C.T.L., E.C.L.

Truth tables.

Boolean Algebra.

Binary numbers, Bits, Radix, Notation, etc.

Counting Circuits:

Fan in, Fan out

J.K. Flip-Flops, Single, Master, Slave

Integrated circuits

Clocked flip-flops

Waveforms

Synchronous, Asynchronous, Ring Counters, Ripple-through

Truth tables, UP counting, DOWN counting

Dividers: divide by 2, quinary, bi-quinary, decade.

Decoders:

Binary to decimal

Johnson binary to decimal.

AERIALS AND PROPAGATION

Aerials—natural frequency:

Methods of tuning

Voltage and current distribution

Radiation resistance and aerial efficiency—losses

Methods of coupling and matching

M.F. aerials—

Vertical

With horizontal top component

Effective height

Concept of metre amps.

H.F. aerials—

Dipoles

Aperiodics.

V.H.F. aerials—
 Vertical dipoles
 Feeders.
 Protective devices in receiver aerials
 Artificial aerials, switchboards, etc.
 Polar diagrams of radiation from
 i. Marconi $\frac{1}{2}$ wave
 ii. Vertical dipole
 iii. Horizontal dipole.
 Reciprocity theorem.
 Classifications of frequencies (v.l.f., l.f., m.f., h.f., v.h.f., u.h.f., s.h.f.).
 Use in marine radiocommunications.
 Marine bands.
 Part played by the ionosphere (E F1 F2 layers) in long distance communications on h.f.; seasonal and diurnal variations.
 Typical frequencies in common circumstances. Maximum usable frequency and optimum frequency. Causes of fading. Skip distance.
 Propagation on m.f.; factors affecting range and reliability.
 Propagation on v.h.f.
 Part played by D layer of ionosphere; reception on l.f. and v.l.f.
 Definitions of radiated power:
 mean, peak, average.
 Atmospheric. Cause and prevention of machine made radio interference.
 The inductive field of a transmitter.

TRANSMITTERS

Block diagrams of typical marine transmitters suitable for:

- i. c.w., m.c.w., d.s.b., r.t. on m.f. and h.f.
- ii. c.w., m.c.w. on 500 kHz
- iii. s.s.b. on m.f. and h.f.
- iv. f.m. on v.h.f.

With description of functions stage by stage including use of essential metering points.

Circuit diagrams of basic and essential stages.

V.H.F. techniques in circuitry.

Pre-emphasis and de-emphasis.

Methods of keying.

Voice operated controls.

Quick heat arrangements.
Ledex principle of switching.

RECEIVERS

Block diagrams of typical marine receivers suitable for:

- i. c.w., m.c.w., d.s.b., r.t. on m.f. and h.f.
- ii. c.w., m.c.w., on 500 kHz
- iii. s.s.b. (with or without carrier) on m.f. and h.f.
- iv. f.m. on v.h.f.

With description of functions stage by stage.

Circuit diagrams of basic and essential stages.

Use of simple, delayed and amplified a.g.c. systems including special circuits applicable to Auto Alarm receivers.

V.H.F. receiver techniques including de-emphasis.

Sensitivity, selectivity and adelity.

Noise limiting, muting.

Principles of ganging and tracking in variable tuned receivers.

DIRECTION FINDERS

Reception properties of a rotating loop.

Principle of operation of the Bellini Tosi system.

Reception properties of sense aerial and method of sensing.

Circuit diagrams of rotating loop and Bellini Tosi aerial systems including any stage prior to introduction of sense.

Polar diagrams of reception and inclusion of sense.

Vertical, quadrantal and semi-circular errors and steps to minimise.

Calibration; effects of aerials, standing rigging, etc.

Polarisation errors, cause and recognition.

Coastal refraction, cause and necessary precautions.

Block diagram of d.f. receiver including automatic gonio type with description of functions stage by stage.

Special application of balanced modulators operating from gonio, sense and servo oscillator signals to provide servo operation of gonio and automatically establish bearing—knowledge of operation using circuit diagram.

Block diagram of cathode ray tube display d.f. and knowledge of principles.

SURVIVAL CRAFT EQUIPMENT

Block diagrams of portable survival craft equipments (transmitters, receivers, automatic keys, two tone generators) with description of functions stage by stage.

Circuit diagrams of basic circuits including r.t. two tone generator and method of switching, method of modulation.

Keying and switching arrangements for testing.

Hand generated power supplies.

AUTOMATIC KEYING DEVICES

Block diagram showing relationship between automatic keying device and other equipment. Explanation of facilities available.

Description of operation from circuit diagrams provided. Constant speed motors and associated simple gearing for automatic transmission.

AUTOMATIC ALARMS

Block diagram of equipment with description of functions stage by stage.

Failure warning devices.

Provisions for testing.

Description of selector operation using diagram provided.

Interpretation of diagrams which will be one of the following:

- i. CR timing with valve relay counters.
- ii. CR timing with mechanical relay counters.
- iii. Timing using fixed speed motor and cam counter.

Understanding of basic operation of the other two types.

BASIC PRINCIPLES OF PREVENTIVE AND REMEDIAL MAINTENANCE

The reliability of marine electronic equipment: failure rates of equipments and components.

The more common faults in electronic components.

Standard procedures of preventive maintenance.

Standard systematic procedures of fault-tracing.

Simple signal injection and detection devices used for fault-tracing.

6. Specimen Papers (Part I)

(1) Examination for the Home Office Maritime Radiocommunication General Certificate—Fundamentals of Electricity and Radiocommunications

Three hours allowed for this paper.

Maximum possible marks 120.

Part A

Two questions should be answered in this part. (20 marks each question—allow about thirty minutes a question)

1. With the aid of a sketch describe the action of a magnetic armature type relay.

What would be a likely cause or causes if:

- (i) the movement of the armature did not close the relay contacts;
- (ii) the relay continued to hold on after the activating current had been cut off.

2. Draw a block diagram of a simple ship to shore radio-telephone link for duplex working and state the function of each block.

Briefly describe the operation of a hybrid transformer.

3. Why is the specific gravity reading of a lead acid cell a more accurate indication of its state of charge than the terminal voltage? What is the likely effect upon a lead acid cell if it is left in an uncharged condition for a prolonged period?

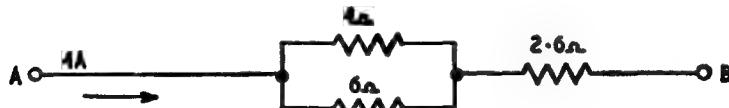
What are the effects of (i) over charging?

(ii) charging at too high a rate?

Part B

Twenty questions should be answered in this part. (4 marks each question—allow about six minutes a question)

(a) What is the resistance of a uniform wire in terms of its diameter, length and specific resistance? What would be the effect upon the total resistance of doubling the diameter of the wire?



Calculate:

- (i) resistance between A and B,
- (ii) current through the 6Ω resistor,
- (iii) p.d. between A and B.

(c) Upon what does the e.m.f. of a primary cell depend? What is the e.m.f. of a dry Leclanche cell? Why should dry cells within instruments be inspected regularly?

(d) Two inductors have values of 100 mH and 200 mH respectively and a mutual inductance of 50 mH . What is the coupling coefficient? What is the total inductance if the coils are connected in series with mutual inductance additive?

(e) How much energy is stored in the field of an inductor of 10 H if a steady current of 2 A is flowing through it? What happens to this energy if the circuit is broken by a switch?

(f) An oil-filled capacitor has a capacitance of $0.1\text{ }\mu\text{F}$ and a breakdown voltage of 1000 V . What would be the probable effects upon its capacitance and breakdown voltage if all the oil leaked away? (Note: relative permittivity of the oil is 2.2 and its dielectric strength is 60 kV/cm compared with 30 kV/cm for air).

(g) Sketch a sine wave representing one cycle of $I \sin \omega t$ and another representing $\frac{1}{2}I \sin 2\omega t$. Sketch a curve illustrating the effect of adding these two together.

(h) An amplifier consists of 3 stages of amplification each with a voltage gain of 60. What is the overall gain? Express this also in decibels ($\log 60 = 1.7782$).

(i) Briefly state the purpose of the permanent magnet in a telephone earpiece.

(j) What is meant by the r.m.s. value of a sine wave? Why are r.m.s. values generally used in a.c. calculations?

(k) What is meant by (i) reactance, (ii) impedance, (iii) resonance, as applied to an a.c. circuit?

(l) Define the power factor of an a.c. circuit. If the voltage across a circuit leads the supply current by $\frac{\pi}{4}$ rad (45°), what is the power factor?

(m) What is the Q factor of a tuned circuit? Calculate the Q factor of a tuned circuit which resonates at 500 kHz and has an inductance of 1 mH and resistance of $10\text{ }\Omega$.

(n) With the aid of a circuit diagram show how the impedance offered by a parallel tuned circuit may be reduced for matching purposes.

(o) Draw curves to illustrate the response of mutually coupled tuned circuits which are:

- (i) under-coupled (or loosely coupled)
- (ii) critically coupled
- (iii) over-coupled (or tightly coupled).

Use your curves to indicate the band-pass in each case.

(p) What is meant by (i) the regulation, (ii) the efficiency, of a transformer ?
How is the power lost by a transformer dissipated ?

(q) Why is a starter resistance usually necessary with a shunt wound motor ? Draw a simple circuit diagram to show how a starter resistor may be connected.

(r) A balanced three phase four wire a.c. supply has a potential of 400 V between lines. What is the voltage between a line and neutral ?
What is the phase relationship between the potentials of the three lines ?

(s) What is meant by secondary emission in a thermionic valve ? How is its effect minimised in the pentode valve ?

(t) Draw the output characteristic curves of a transistor used in the common emitter configuration for three equally spaced values of base current. Label the scales clearly.

(u) Draw anode-current/anode-voltage characteristic curves of (i) a triode, (ii) a tetrode and (iii) a pentode. Indicate in each case the portion of the slope suitable for linear operation.

(v) Briefly describe the principle of the thermo-couple. How is it used in the measurement of r.f. currents ?

(w) A moving coil voltmeter gives a full scale deflection when the current through it is $100 \mu\text{A}$. What is its sensitivity in ohms per volt ? What would be the value of a suitable series resistor if the full scale were used to measure 100 V ? (Ignore resistance of moving coil.)

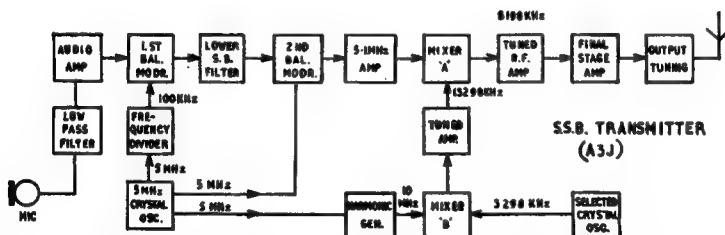
(x) With the aid of a circuit diagram briefly describe the action of a simple absorption wave-meter.

(y) Sketch the symbol for a varactor. Briefly explain variation of capacity with applied voltage and state a typical application.

6. (2) Examination for the Home Office Maritime Radiocommunication General Certificate—Marine Radiocommunications

Three hours allowed for this paper.
Six questions should be answered in all:
choice is not restricted.

1. Draw the block diagram of a ship's main receiver and state the function of each block. What is meant by
 - (a) second channel interference
 - (b) adjacent channel interference
 to reception by a superheterodyne receiver ?
How are these minimised ?
2. With the aid of polar diagrams describe the reception properties of a loop aerial and a vertical aerial and show how these properties may be combined to determine the direction of a transmitter.
What is quadrantal error and how is it corrected ?
3. With the aid of a circuit diagram describe the intermediate amplifier of a receiver which is able to provide different degrees of band-pass.
- 4.



The above block diagram represents an s.s.b. transmitter operating with suppressed carrier (A3J) on a radiating frequency of 8198 kHz.

- (i) Why is the low pass filter following the microphone necessary and what is a suitable cut-off frequency for it ?
- (ii) What bands of frequencies are covered by the output of the first balanced modulator ?
- (iii) Draw a simplified diagram of a circuit suitable for the lower sideband filter.
- (iv) The input to the second balanced modulator contains the lower sideband only. How is this changed to upper sideband before transmission ?

(v) If the 5 MHz crystal oscillator and the selected crystal oscillator both have stabilities of 10 Hz, what is the stability of the transmitted signal?

(vi) What is the radiated frequency if the input to the microphone is a pure tone of 1 kHz? How is the radiated power related to the output from the audio amplifier?

(vii) Where could "power reducing" circuits be introduced? What form could these take?

(viii) What would be the effect upon the transmitted signal if the level of input to the second balanced modulator from the 5 MHz oscillator were below the level of input from the lower sideband filter?

(ix) What are suitable provisions for maintaining the stability of the 5 MHz oscillator?

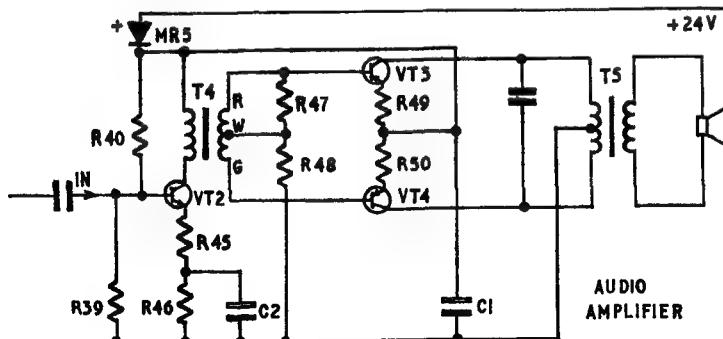
(x) If the final stage consists of a valve amplifier, what class of operation is it likely to use? How could grid bias be supplied?

5. Draw the circuit diagram of a Colpitt's oscillator using a pentode valve to provide an electron coupled output and employing grid leak bias. Describe how oscillations are maintained and say why this particular form of output is an aid to oscillator stability.

6. Draw the circuit diagram of a ring-bridge modulator using semi-conductor diodes and describe its action.

7. With the aid of the circuit diagram provided, describe the action of the automatic alarm selector in response to a signal consisting of a dash of 4 seconds followed by a space of 0.5 seconds and a further dash of 10 seconds.

8.



The above circuit diagram is of the output stages of a receiver.

- (i) What types of transistors are VT2, VT3 and VT4 (p-n-p or n-p-n?)
Are any of these likely to have heat sinks?
- (ii) What is the configuration of the amplifier VT2 and what class of operation must it use?
- (iii) What determines the forward bias on VT3 and VT4?
- (iv) If the output transistors operate in Class B, what would you expect their forward bias to be, 0.2 V or 0.6 V? What will happen to the combined emitter currents if the input signal is reduced from maximum to zero?
- (v) What type of capacitor is C1 and what is its purpose?
- (vi) What is the purpose of MR5? Would the amplifier work if this were shorted out?
- (vii) What would be the effect upon the speaker output if VT4 became open circuited from emitter to base?
- (viii) If an audio signal is applied to point W on T4 what sort of an output would you expect from the speaker? Briefly explain your answer.
- (ix) What effect would a break in R46 have on the operation of the amplifier?
- (x) What would be the likely effect of an open circuit in R40?

9. A typical LOGIC question might be:

Sketch a 2 input diode resistor AND gate and describe how it performs the AND function.

Sketch a 2 input diode resistor OR gate and describe how it performs the OR function.

Write down the TRUTH table for both AND and OR gates shown in your sketches.

Sketch a 2 input diode transistor NAND gate and write down the TRUTH table.

7. Specimen Papers (Part II)

(1) Regulations and Procedures and use of International Documents

Instructions

Enter your name:.....

Check that you have available on your desks, for use during the test:

- (i) A map of the World.
- (ii) List of Radiodetermination and Special Service Stations.
- (iii) List of Coast Stations.
- (iv) List of Ship Stations.
- (v) List of Call signs.

You may use instruments such as ruler, dividers etc., and you may use ready reckoners.

Question papers must be returned. Answers should be given in the spaces provided on the question paper.

All questions should be attempted.

Total time allowed for both parts (i) and (ii) is 50 minutes.

Regulations and Procedures and use of International Documents

Part I

Regulations and Procedures

1. (a) Give an example of a request message to a United Kingdom coast station from a ship station for a special meteorological forecast.

.....
.....
.....

(b) What charge is made for this type of message ?

.....

2. For what purposes may radio apparatus licensed by the Home Office be used in harbours and estuaries of the United Kingdom ?

.....

.....
.....
.....
.....
.....
.....
.....
.....
.....
.....

3. Give five classes of radiotelegrams which cannot be accepted in the radiotelegraph service.

- (i)
- (ii)
- (iii)
- (iv)
- (v)

4. What are the "Q" code abbreviations for the following:

- (a) Shall I send each word or group more than once?
- (b) What is my true bearing from you?
- (c) Are you ready?
- (d) I have six R/T calls for you
- (e) Are you busy?

State the meanings of the following abbreviations:

- (f) AB
- (g) CL
- (h) PBL.....

(i) RQ

(j) BK

5. What classes of emission are symbolised by the following:

(a) A1

(b) F3

(c) A2

(d) A3J

(e) A4A.....

Name.....

Part II *Charging of Radiotelegrams, use of ITU Documents, Routes, etc.*

1. Complete the charges columns in respect of the following two messages:

TO BE TREATED AS HANDED IN ON British Ensign ON.....AT 2030 GMT							
Reply paid 10 words							
PREFIX	OFFICE OF ORIGIN	NO.	WORDS	DATE	TIME	SERVICE INSTRUCTION	
	BRITISH ENSIGN						
Williams 73 Stockton Street Reading Train due Waterloo Station 6 p.m. Friday will you meet love JOHN						CHARGES	£
						SHIP	
						COAST STN	
						LANDLINE	
						OTHER	
						Total	

TO BE TREATED AS HANDED IN ON British Ensign ON.....AT 2045 GMT							
..... Route via Northern							
PREFIX	OFFICE OF ORIGIN	NO.	WORDS	DATE	TIME	SERVICE INSTRUCTIONS	
	BRITISH ENSIGN						
VOLGO OSLO ETA Noon Saturday require Pilot MPXRO VWZYQ 251700 MASTER						CHARGES	£
						SHIP	
						COAST STN	
						LANDLINE	
						OTHER	
						Total	

2. Your ship is approaching Hamburg and you have a message for the ship's agent there for transmission by W/T:

Answers

(i) What radio station would you call?

(ii) What is its call sign?

(iii) What is its position?

(iv) What is its normal working frequency?

(v) What would be the charges involved?

3. Complete the following table:

Call sign	Name of Station	Associated Country	Station Charges	Whether fitted D.F.
VIS OULZ	British Pioneer Boulogne Radio			

4. On what frequencies and at what times does Hong Kong broadcast China Seas Storm warnings on W/T?

Frequencies	Times

5. A ship is on a voyage from Southampton to Wellington NZ via the Cape of Good Hope.

Name five countries en route with which it could probably establish m.f. W/T communications:

(i)

(ii)

(iii)

(iv)

(v)

If the ship has m.f. and h.f. W/T equipment what procedure could it adopt to send a radiotelegram to London if its position was just off the Cape of Good Hope?

.....
.....

7. (2) Safety of Life at Sea—Radio Communications

Instructions

Enter your name

All questions should be attempted and answers inserted in the spaces provided.

Time allowed is 10 minutes.

Use of reference books, notes etc., is not permitted.

(1) What are the essential details of a distress message from a ship?

(a)

(b)

(c)

(d)

(e)

(2) What action would you take if you received a distress message from a vessel known to be a few miles away?

.....
.....

.....
.....
.....
.....
(3) What are the meanings of:

(a) QUF GYKP?

(b) QTY?

(c) QUS?

(d) QOK?

(4) When would you use?

(a) QRT SOS

.....

(b) DDD SOS

.....

(c) QRT DISTRESS

.....

.....

7. (3) MARITIME RADIOCOMMUNICATION
GENERAL CERTIFICATE

PRACTICAL KNOWLEDGE

All 10 questions to be answered

Time allowed—1 hour

Name.....

Please check that you have available the following:

Circuit diagrams:

Main Transmitter Frequency Generator Sheets 1 and 2 (M30 1076-01)
“Commander” Power Supply Unit (M30 1075-01)

Main Receiver
"Atalanta"

Complete circuit diagram

Auto-Alarm
"Lifeguard"

Selector and receiver combined

Questions

General

1. (a) How would you test a suspected faulty transistor
(i) in circuit? (ii) out of circuit?
(b) How would you test a suspected faulty valve?

Answer

.....
.....
.....
.....

MAIN TRANSMITTER

2. Refer to circuit diagram(s): Frequency Generator Sheet 1

Trace the following circuits and record in the correct order the identifications of all components, switches, metering points etc.:

- (a) —24 V to VT2 in A3J condition

Answer

.....
.....

- (b) 100 kHz input (points 14 and 15 below 1st Mixer) to VT13 in A1 condition

Answer

.....
.....

App. 4]

3. Refer to circuit diagram(s): Power Supply Unit
What is the function and purpose of the following:
(a) RLB 2 (extreme right, middle)

Answer

.....
.....

(b) "Zener diode in cabinet" (9 o'clock VT3)

Answer

.....
.....

4. Refer to circuit diagram(s): Frequency Generator Sheet 2
State the probable effects on closely related circuitry caused by the following fault conditions:

(a) Disconnection of C103 (3 o'clock VT16)

Answer

.....
.....

(b) Disconnection RV20 (9 o'clock SC10)

Answer

.....
.....

MAIN RECEIVER

5. Refer to circuit diagram: "Atalanta"

Trace the following circuits and record in the correct order the identifications of all components, switches, metering points etc.:

(a) H.T. to anode of V9 heptode (c.w. position)

Answer

.....
.....

(b) The circuit providing limiting bias to MR3/MR4 of noise limiter.

Answer

.....
.....

6. Refer to circuit diagram: "Atalanta"

What is the function and purpose of the following:

(a) R32 (6 o'clock from V7)

Answer

.....
.....

(b) C119 (11 o'clock V7)

Answer

.....
.....

7. Refer to circuit diagram: "Atalanta"
State the probable effects on closely related circuitry caused by the following fault conditions:

(a) R96 open circuit (6 o'clock V10)

Answer

.....
.....

(b) Failure of wiper contact on SWA (11 o'clock V5)

Answer

.....
.....

AUTO-ALARM

8. Refer to circuit diagram: "Lifeguard"
Trace the following circuits and record in the correct order the identifications of all components, switches, metering points etc.:

(a) H.T. to screen grid of 3V8B

Answer

.....
.....

(b) D.C. circuit of 1V5B (conducting in alarm condition)

Answer

.....
.....

9. Refer to circuit diagram: "Lifeguard"
What is the function and purpose of the following:

(a) V16A and B

Answer
.....
.....

(b) 3V8B

Answer
.....
.....

10. Refer to circuit diagram: "Lifeguard"
State the probable effects on closely related circuitry caused by the following fault conditions:

(a) Disconnection at 2/24 (5 o'clock V22B)

Answer
.....
.....

(b) Disconnection at 2/9 (8 o'clock V13)

Answer
.....
.....

8. Workshop Practice—Specifications

Each candidate will be required to construct simple pieces of equipment during his course of instruction which will entail soldering between components and tags, soldering to printed circuitry and utilising at least 2 semi-conductors.

The pieces of equipment are to consist of two items:

- (a) one using printed circuits, transistors and associated techniques;
- (b) one using larger components, including one valve, and a metal chassis.

One of these items should include a coaxial connection.

The exact nature of each item would have to be approved by the Post Office and would have to meet the specification given below.

Item 1 Printed Circuit Item

Specification The item should include at least 8 components, 2 of which should be semi-conductors, mounted on a printed circuit board within a surface area space of 3 square inches and using no less than 10 soldered connections to the printed circuitry. The test item could form part of a much larger construction providing the whole had been approved. A coaxial connector should form part of the equipment—although not necessarily within the section described as the specified item—unless one was included in the second test item.

Item 2 Metal Chassis Based Item

Specification This item should include 8 components, one of which should be a valve, mounted on a steel or aluminium chassis (any convenient size) and using at least 10 soldered connections. Chassis connections should be made by using suitable nuts and bolts and locking washers. As in Item 1, the construction submitted for the test could form a part of a larger item. It should also include a coaxial connector if this was not included in Item 1.

9. Radiotelephony Certificates

Restricted Certificate

1. The Restricted Certificate states that the holder has been examined in radiotelephony and has passed in:
 - (a) Practical knowledge of the adjustment of radiotelephone apparatus.
 - (b) Practical knowledge of radiotelephone operation and procedure.
 - (c) Sending and receiving spoken messages correctly by telephone.
 - (d) General knowledge of the regulations applying to radiotelephone communications and particularly of that part of those regulations relating to the safety of life.
2. The examination consists of practical and oral tests. Candidates are required:
 - (a) To operate a radiotelephone installation, including changing frequency, varying the power of the transmitter and charging batteries.
 - (b) To possess a knowledge of radiotelephone procedure in general and the distress regulations in particular.
 - (c) To maintain a radiotelephone log.
 - (d) To send and receive messages by telephone.

General Certificate

3. The General Certificate states that the holder has been examined in radiotelephony and has passed in:
 - (a) Knowledge of the elementary principles of radiotelephony.
 - (b) Detailed knowledge of the practical operation and adjustment of radiotelephone apparatus.
 - (c) Sending and receiving spoken messages correctly by telephone.
 - (d) Detailed knowledge of the regulations applying to radiotelephone communications and particularly of that part of those regulations relating to the safety of life.

Syllabus

- (a) Knowledge of the elementary principles of radiotelephony. **Transmitters:** Simple explanation of the production of the carrier wave; knowledge of how a carrier wave is modulated—it is not necessary to know the various methods of producing a modulated wave but candidates should be able to draw the modulation envelope and appreciate the effects of over and under modulation; simple explanation of the elimination of the upper or lower sideband and a knowledge

of its effect on the frequency spectrum, the range of the transmitter, and its reduction of interference to other users of the frequency band; simple explanation of a harmonic generator for the production of radio frequencies in s.s.b. transmitters.

Receivers: Knowledge of the superhet receiver and the function of each stage; elementary knowledge of frequency changing and detection; description of the modulated envelope before and after detection; elementary knowledge of s.s.b. reception—carrier re-insertion, frequency stability.

General: Simple explanation of the valve as an oscillator; simple explanation of the valve as an amplifier; simple explanation of the transistor as an amplifier; elementary knowledge of the conversion of sound waves into electrical energy by means of a microphone; elementary knowledge of the conversion of electrical energy into sound waves by means of a loudspeaker or headphones; elementary properties of aerials with regard to height, length and leakage resistance—effect of dirty insulators, salt water, fresh water and rainwater; simple explanation of the propagation of electromagnetic waves; knowledge of maintenance and care of batteries—battery voltage on and off load, hydrometer readings.

- (b) Detailed knowledge of the practical operation and adjustment of radiotelephone apparatus.
Candidates will be required to tune s.s.b. transmitters on both main aerial and artificial aerial (if fitted) and to test the two-tone generator into the artificial aerial, change frequency, vary the power and tune the associated s.s.b. receiver.
- (c) Sending and receiving spoken messages by telephone.
This test should include a detailed log and entries should show silence periods, initial radio contact with the coast station, and all procedure terminating in the completion of traffic on working frequencies.
- (d) Detailed knowledge of the regulations applicable to radio-telephone communications and particularly of that part of those regulations relating to the safety of life at sea.
The test will be a written examination in which ten questions should be answered in 30 minutes.
- (e) Knowledge of simple maintenance on the equipment.
Tracing and clearing simple faults. The faults will not involve the use of a soldering iron but be confined to fuses, valves, aerials and switches. The candidate should appreciate the significance of the various transmitter meter readings and the absence of any particular meter reading.

APPENDIX 5

Form of Radiocommunication Log-Book

RADIOTELEGRAPH LOG

PART I

Name of Ship	Official Number and International Call Sign	Port of Registry	Gross Tonnage

Name of Company operating the Radio Service.....

Port at which and date when voyage commenced	Nature of the voyage or employment	Port at which and date when voyage terminated
Date		Date
Port		Port

Delivered to the Superintendent of the Mercantile Marine Office at the Port of.....

.....on the.....day of.....19.....

together with Radiotelegraph Log Part II, serial numbers.....to.....

CountersignedMaster

.....SuperintendentAddress

SECTION A—PARTICULARS OF RADIO STAFF

Name	Home Address	Certificate Number and Class

App. 5]**SECTION B—PARTICULARS OF BATTERIES ON BOARD**

Battery Number	Number of Cells	Type	Date supplied	Voltage and Ampere-hour Capacity	Purpose for which used

SECTION C—DAILY EXAMINATION OF BATTERIES

Date	Battery Number	Voltage off Load	Voltage on Load	Remarks

SECTION D—MONTHLY REPORT OF BATTERIES

Date	Battery Number Cell by Cell	Specific Gravity as measured		Remarks	Date	Battery Number Cell by Cell	Specific Gravity as measured		Remarks
		Before Charge	After Charge				Before Charge	After Charge	

RADIOTELEGRAPH LOG**PART II**

Name of Ship	Official Number and International Call Sign	Port of Registry	Gross Tonnage

Serial Number.....from.....to.....

Name of Company operating the Radio Service.....

S.S.
M.V.

DIARY OF THE RADIOTELEGRAPH SERVICE

Date and Time (G.M.T.)	Station From	Station To	Full Details of Calls, Signals and Distress Working	Frequency

RADIOTELEPHONE LOG

Name of Ship	Official Number	Port of Registry	Gross Tonnage

Name of Company operating the Radio Service.....

Period covered by Log—From..... To.....

Delivered to the Superintendent of the Mercantile Marine Office at the Port of.....

.....on the..... day of..... 19.....

Countersigned Master

..... Superintendent Address

SECTION A—PARTICULARS OF RADIOTELEPHONE OPERATORS

Name	Home Address	Certificate Number and Class

S.S.
M.V.

SECTION B—DIARY OF THE RADIOTELEPHONE SERVICE

Date and Time (G.M.T.)	Station From	Station To	Frequency Used	Record of Working

APPENDIX 6

Specimen of Ship Station Licence

United Kingdom of Great Britain and Northern Ireland; The Channel Islands and the Isle of Man

WIRELESS TELEGRAPH ACT, 1949

SHIP LICENCE

Name..... Call Sign..... Public Correspondence Category.....

Date of issue..... Fee on issue.....

Renewal fee of..... due on or before..... and on or before every anniversary of that date.

I (1)

of

(hereinafter called "the Licensee")

is hereby licensed, subject to the terms, provisions and limitations herein contained:—

- (a) to establish a sending and receiving station for wireless telegraphy* (hereinafter called "the Ship Station"), in the ship named above (hereinafter called "the ship"); and
- (b) to use the Ship Station for the purpose of
 - (i) sending by wireless telegraphy messages to coast stations, ship stations and aircraft stations;
 - (ii) receiving by wireless telegraphy messages sent from coast stations, ship stations, aircraft stations, special service stations and radio-navigation stations, for general reception by ship stations or for reception by the Ship Station, and messages (including programmes but not including visual images sent by television) sent by authorized broadcasting stations;
 - (iii) in emergency involving danger to life or to navigation only, sending and receiving messages to and from any other station for wireless telegraphy with which it is desirable that the ship should communicate.

(2) The foregoing Licence to use the Ship Station is subject to the following limitations:—

- (a) When using for sending, the Ship Station shall be used only with emissions which are of the classes specified in the First Schedule hereto, and are on

* See note (g)

(The text reproduced above is that of the standard licence current on 1st January, 1975.)

(specimen licence continued)

the frequencies specified in the First Schedule hereto in relation to those respective classes of emission, and with a power not exceeding that specified in the First Schedule hereto in relation to the class of emission and frequency in use at the time.

- (b) Except in the case of distress, in emergency involving danger to life or to navigation, or for purposes of safe navigation:
 - (i) no message shall be sent to a ship station for onward transmission to any other station for wireless telegraphy, except a coast station, another ship station, or an aircraft station; and
 - (ii) while the ship is within, or within one mile of, any port, harbour, or dock, or any anchorage in the territorial waters of any country, the Ship Station shall not be used for sending or receiving messages directly to or from any ship station except when communicating in the Port Operation Service (V.H.F.) on the appropriate frequencies in the band 156.025 to 162.025 MHz.
- (c) No message which is grossly offensive or of an indecent or obscene character shall be sent.
- (d) Except when used for receiving messages from radio-navigation stations or authorized broadcasting stations, the Ship Station shall be operated only by persons authorized by the Licensee in that behalf and possessing the written authority of the Secretary of State to fill the position of operator of a ship's station for wireless telegraphy of the type of the Ship Station.

2. (1) The Licensee is also licensed, subject to the terms, provisions and limitations herein contained:—

- (a) to establish sending and receiving stations for wireless telegraphy (hereinafter called "the Lifeboat Stations", which expression shall include any portable wireless telegraphy apparatus used in a lifeboat or other survival-craft) in the lifeboats and other survival-craft associated with, and normally carried by the ship, and
- (b) to use the Lifeboat Stations in an emergency involving danger to life or to navigation only for sending and receiving by wireless telegraphy such messages as the circumstances may require, and at other times for testing the working of the apparatus comprised in such stations on or in the vicinity of the ship.

(2) The foregoing Licence to use the Lifeboat Stations is subject to the following limitations:—

- (a) When used for sending, the Lifeboat Stations shall be used only with emissions which are of the classes specified in the Second Schedule hereto, and are on the frequencies specified in the Second Schedule hereto in relation to those respective classes of emission, and with a power not exceeding that specified in the Second Schedule hereto in relation to the class of emission and frequency in use at the time.
- (b) The Lifeboat Stations shall be operated only by such persons as are referred to in Clause 1 (2) (d) hereof: Provided that nothing in these limitations shall prevent the use or operation of the Lifeboat Stations in distress in whatever manner and by whatever persons may be necessary for the purpose of attracting attention, making known their position and obtaining help.

3. The Licensee is also licensed, subject to the terms, provisions and limitations herein contained:—

- (a) to establish a ship's radar sensing and receiving station for wireless telegraphy (hereinafter called "the Radar Station") in the ship, and

(The text reproduced above is that of the standard licence current on 1st January, 1975.)

(specimen licence continued)

(b) to use the Radar Station for sending and receiving signals (not being messages having a verbal significance) within the frequency band specified in the Third Schedule hereto, for the purposes of the determination of position, bearing or distance, or for the gaining of information as to the presence, absence, position or motion of any object or of any objects of any class.

4. (1) The Licensee, and all persons operating the stations which the Licensee is authorized by this Licence to establish and use (hereinafter called "the said Stations"), shall observe and comply with the relevant provisions of the Telecommunication Convention.

(2) The apparatus comprised in the said Stations shall be so designed, constructed, maintained and used that the use of the said Stations does not cause any avoidable interference with any wireless telegraphy.

(3) (a) Any apparatus comprised in the Ship Station shall at all times be so adjusted that it shall only be possible to transmit with such apparatus on a frequency specified in the First Schedule and any apparatus comprised in the Lifeboat Stations shall at all times be so adjusted that it shall only be possible to transmit with such apparatus on a frequency specified in the Second Schedule.

(b) Any such apparatus (other than direction-finders and auto-alarms) installed on or after the 1st day of November, 1955* shall at all times comply with such of the Performance Specifications which at the date of installation of the apparatus shall have been most recently published by Her Majesty's Stationery Office on behalf of the Secretary of State as are applicable to such Stations, subject however to such modifications of the said specifications in favour of the Licensee as the Secretary of State may from time to time permit: Provided that where any such Performance Specification is declared by notice addressed to all holders of Ship Licences published in the London, Edinburgh and Belfast Gazettes to be one which will come into operation on a specified date after publication by Her Majesty's Stationery Office, nothing in this paragraph shall require such apparatus to comply therewith before the said date.

(4) The said apparatus, and in particular the headgear receivers and microphones thereof, shall be kept in a clean and sanitary condition, and dangerous parts of the said apparatus shall be so screened or isolated as to ensure the reasonable comfort and health of the persons operating the said Stations.

(5) This Licence, any notices of variation served on the Licensee in writing by virtue of the provisions of Clause 7 (3) of this Licence, the latest edition for the time being of the Post Office Handbook for Radio Operators (or an earlier edition and all published amendments thereof, provided that such edition and amendments are textually equivalent to the latest edition) and all published amendments thereof for the time being in force, the documents listed in the said Handbook as required to be carried on board a ship of the category to which the ship belongs, and a copy of all Notices to Ship Wireless Stations current for the time being, shall be carried on board the ship in the wireless room, and a copy of Section 11 of the Post Office (Protection) Act, 1884, as amended, shall be exhibited in the wireless room. The Licence together with any notices of variation served on the Licensee in writing by virtue of the provisions of Clause 7 (3) of this Licence shall be available for inspection when required, by any person acting on behalf of the Secretary of State or the Department of Trade and by competent authorities of the countries where the ship calls.

* See note (m)

(The text reproduced above is that of the standard licence current on 1st January, 1975.)

(specimen licence continued)

(6) (a) Subject to the provisions of the next following sub-paragraph the call sign of the Ship Station referred to above shall be used whenever it is necessary to identify the Ship Station. Such call sign followed by two digits (other than 0 or 1 shall be used to identify any of the Lifeboat Stations. A different combination of digits shall be used in respect of each Lifeboat Station.

(b) When using radiotelephony the name of the ship referred to above shall for the purposes of the last preceding sub-paragraph be substituted for such call sign.

(7) The Licensee shall not permit or suffer any unauthorized person to operate the said Stations or to have access to the apparatus comprised therein: Provided that the Licensee shall permit any person acting on behalf of the Secretary of State or the Department of Trade to have access to the said Stations at all reasonable times for the purpose of inspecting and testing the apparatus comprised therein. The Licensee shall ensure that persons operating the said Stations observe the terms, provisions and limitations of this Licence at all times.

(8) The said Station shall be closed down at any time on the demand of a person acting on behalf of the Secretary of State.

5. (1) The Licensee (which expression shall include where the context requires any operating agency designated by and acting under the authority of the Secretary of State (hereinafter called "the agency")) shall render to the Secretary of State or the agency such accounts as the Secretary of State shall direct in respect of all charges due or payable under the Telecommunication Convention in respect of messages including radio telegrams and radiotelephone calls exchanged between the Ship Station and any other stations.

(2) The Licensee shall pay to the Secretary of State or the agency, at such times and in such a manner as the Secretary of State shall direct, all sums which shall be due from the Licensee for such messages.

(3) A certified statement of any such sums signed by an officer of the Secretary of State or a person acting under the authority of the Secretary of State shall for all purposes (including the purpose of any proceedings by or against the Crown) be sufficient evidence, unless the contrary is proved, of the facts therein stated.

6. (1) All members of the crew of and passengers in the ship for the time being are hereby licensed to install apparatus for receiving wireless telegraphy in the ship and to use the said apparatus for the purpose of receiving messages (including programmes but not including visual images sent by television) sent by authorized broadcasting stations for general reception, and messages from licensed amateur stations.

(2) The said apparatus shall be so maintained and used that it does not cause interference with any wireless telegraphy.

(3) The said apparatus shall be open to inspection at all reasonable times by a person acting under the authority of the Secretary of State and shall cease to be used at any time on the demand of any such person.

7. (1) Subject as hereinafter provided, this Licence shall continue in force from year to year until revoked by the Secretary of State.

(2) The Licensee shall pay to the Secretary of State on the issue of this Licence the sum prescribed by or under regulations for the time being in force under section 2(1) of the Wireless Telegraphy Act, 1949 and in advance in each year on or before the anniversary of the date of issue the renewal fee prescribed by or under the said regulations.

(3) The Secretary of State may at any time after the date of issue revoke this Licence or vary the terms, provisions or limitations thereof by a notice in writing served on the Licensee, or by a general notice published in the London, Edinburgh

(The text reproduced above is that of the standard licence current on 1st January, 1975.)

(specimen licence continued)

and Belfast Gazettes addressed to all holders of Ship Licences. Any notice given under this clause may take effect either forthwith or on such subsequent date as may be specified in the notice.

8. This Licence is not transferable.
9. This Licence shall be returned to the Secretary of State when it has been revoked.
10. Any Licence, however described, which the Secretary of State has previously granted to the Licensee in respect of the said Stations is hereby revoked.
11. Nothing in this Licence shall be deemed to waive any requirement imposed on the Licensee by or under any Act of Parliament.
12. In this Licence, (a) the expression "the Telecommunication Convention" means the International Telecommunication Convention signed at Malaga-Torremolino on the 25th day of October 1973, and the Radio Regulations and Additional Radio Regulations in force thereunder and includes any Convention and Regulations which may from time to time be in force in substitution for or in amendment of the said Convention or the said Regulations; the expression "Port Operation Service" means a service for communicating between coast stations operated by a Harbour Board or similar authority and ship stations, or between ship stations, in which messages are restricted to those related to the movement and the safety of ships, and in emergency, to the safety of persons; and, except where the context otherwise requires, other words and expressions have the same meaning as they have in the Wireless Telegraphy Acts, 1949-1967, or in the regulations made under Part 1 thereof; (b) the expression "the Secretary of State" shall mean the Secretary of State for the Home Department.

Signed on behalf of the Secretary of State for the Home Department.

(The text reproduced above is that of the standard licence current on 1st January, 1975.)

(specimen licence continued)

NOTES

- (a) The Secretary of State should be notified promptly of any change in the address of the Licensee, or of any change in the stations comprised in this Licence. Except as provided below, correspondence about this Licence should be sent to the Home Office, Radio Regulatory Division, Waterloo Bridge House, Waterloo Road, London, SE1 8UA.
- (b) Remittances and correspondence about payments to the Secretary of State required under this Licence should be sent to the Accounting Officer, Home Office, Waterloo Bridge House, Waterloo Road, London, SE1 8UA.
- (c) Details of requirements as to operators' qualifications, the precise frequencies to be used for communicating with coast stations or other ship stations or aircraft stations, the inspection of the wireless apparatus comprised in the stations, etc., are contained in the Post Office Handbook for Radio Operators and in "Notices to Ship Wireless Stations" issued by the Post Office.
- (d) This Licence does not authorize the doing of any act which is an infringement of any copyright which may exist in the matter sent or received.
- (e) This Licence does not authorize the transmission of music.
- (f) The sending and receipt (except in emergency) of messages to and from stations other than those stated in this Licence is prohibited.
- (g) The expression "wireless telegraphy" used in this Licence has the meaning assigned to it in the Wireless Telegraphy Act, 1949, and includes, inter alia, radiotelephony.
- (h) Under section 1 of the Wireless Telegraphy Act, 1949, it is an offence to use any station or apparatus for wireless telegraphy otherwise than under and in accordance with a licence granted by the Minister. Breach of this provision may result in this Licence being revoked and the offender prosecuted.
- (j) If any message, the receipt of which is not authorized by this Licence, is received by means of the said Stations, neither the Licensee nor any person using the said Stations should make known the contents of any such message, its origin or destination, its existence or the fact of its receipt, to any person except a duly authorized officer of Her Majesty's Government or a competent legal tribunal, and should not retain any copy or make any use of such message, or allow it to be reproduced in writing, copied, or made use of. It is an offence under section 5 of the Wireless Telegraphy Act, 1949, deliberately to receive messages the receipt of which is unauthorized or (except in the special circumstances mentioned in that section of the Act) to disclose any information as to the contents, sender or addressee of any such message.
- (k) It is an offence under section 5 of the Wireless Telegraphy Act, 1949, to send false distress signals and certain other misleading messages.
- (l) It is an offence under section 11 of the Post Office (Protection) Act, 1884, if any person, being in the employment of a telegraph company as defined by the section, improperly divulges to any person the purport of any telegram.
- (m) Apparatus in the Ship Station of the Lifeboat Stations installed before the 1st November, 1955, is not at present required (under the terms of this Licence) to comply with the Performance Specifications. If it is to be required to comply with them in the future, the terms of the Licence will be varied under Clause 7 (3). However, any requirements made by or under the Merchant Shipping (Safety Convention) Act, 1949, or any other of the Merchant Shipping Acts from time to time in force must be complied with in addition to the conditions of this Licence.

(The text reproduced above is that of the standard licence current on 1st January, 1975.)

Specimen of Ship Station Licence

United Kingdom of Great Britain and Northern Ireland; The Channel Islands and the Isle of Man

WIRELESS TELEGRAPH ACT, 1949

PARTICULARS OF SHIP STATION

Name.....	Call Sign.....	Public Correspondence Category.....
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THE FIRST SCHEDULE — SHIP STATION

Classes of Emission	Frequencies (Kilohertz)	Mean Radio Frequency Power (in the unmodulated condition)
	(Megahertz)	

THE SECOND SCHEDULE — LIFEBOAT STATIONS

Classes of Emission	Frequencies (Kilohertz)	Mean Radio Frequency Power (in the unmodulated condition)

THE THIRD SCHEDULE — RADAR STATION

Frequency Band	(Megahertz)

(The text reproduced above is that of the standard licence current on 1st January, 1975.)

APPENDIX 7

Documents to be Carried by Ship Stations

Ship stations must carry documents as follows:

(1) Ship Stations for which a Radiotelegraph Installation is required by International Agreement

DOCUMENT	TO BE OBTAINED FROM:
(a) The Ship Licence.	Home Office, Radio Regulatory Division, Aeronautical & Maritime Branch, Waterloo Bridge House, Waterloo Road, London, SE1 8UA.
(b) Copy of Section 11 of the Post Office (Protection) Act, 1884.	
(c) The certificate(s) of the operator(s).	
(d) The Radiotelegraph Log.	Mercantile Marine Offices.
(e) Alphabetical List of Call Signs of Stations used in the Maritime Mobile Service.	The Secretary General, International Telecommunication Union, Geneva, Switzerland, or from any stationer with a foreign currency allowance.
(f) List of Coast Stations.	
(g) List of Ship Stations (the carriage of the supplement optional)-	
(h) List of Radiodetermination and Special Service Stations.	
(i) The Manual for Use by the Maritime Mobile Service.	
(j) Telegraph tariffs of the countries for which the station most frequently accepts radiotelegrams.	The marine radio company or other authority operating the station.
(k) The Post Office Handbook for Radio Operators.	H.M. Stationery Office, either direct or through any bookseller.

(1) Complete file of current Notices to Ship Wireless Stations. These notices are forwarded to all British ships through owners. In case of difficulty they may also be obtained from Mercantile Marine offices, Customs Houses or the Maritime Radio Services Division, The Post Office, Union House, St. Martin's-le-Grand, London, EC1A 1AR, free of charge.

(2) **Other Radiotelegraph Stations on board Ship.**
Documents (a) to (g) and (i) to (l) of Section (1).

(3) **For Stations on board Ships for which a Radiotelephone installation is Required by International Agreement.**

- (a) The Ship Licence.
- (b) Copy of Section 11 of the Post Office (Protection) Act, 1884.
- (c) The certificate(s) of the operator(s).
- (d) The Radiotelephone Log.
- (e) A list of coast stations with which communications are likely to be conducted, showing watchkeeping hours, frequencies and charges.
- (f) The provisions or the Radio Regulations and Additional Radio Regulations applicable to the maritime mobile radiotelephone service or the Manual for Use by the Maritime Mobile Service.
- (g) The Post Office Handbook for Radio Operators.
- (h) Complete file of current Notices to Ship Wireless Stations.

(4) **Other Radiotelephone Stations on board Ship.**
Documents (a) to (e), (g) and (h) of Section (3).

(5) **For Ships Equipped with "Multiple" Installations.**

- (a) For each installation, if necessary, the documents mentioned in (a) to (d) of Section (1) or (a) to (d) of Section (3).
- (b) For any one of the installations, the other documents mentioned in Sections (1) or (3) as appropriate.

In addition all ships should have available an adequate supply of the following forms:

- (a) For radiotelegrams sent from the ship station.
- (b) For radiotelegrams received by the ship station.
- (c) For service messages sent or received by the ship station.
- (d) Reply Paid vouchers.

APPENDIX 8

Radio Direction-Finding Procedures

The following rules of procedure applicable to radiotelegraphy and radiotelephony, are based on the use of radiotelegraphy. When used for radiotelephony, appropriate phrases may replace the service abbreviations if desired.

1.

TO OBTAIN A BEARING

(1) The ship station calls the radio direction-finding station or the radio direction-finding control station on the listening frequency indicated in the List of Radiodetermination and Special Service Stations. Depending on the type of information desired, the calling station transmits the appropriate service abbreviation followed, if the radio direction-finding station is a mobile station, by the service abbreviation QTH? It indicates, if necessary, the frequency on which it is going to transmit to enable its bearing to be taken, and then awaits instructions.

(2) The radio direction-finding station called requests the calling station, by means of the appropriate service abbreviation, to transmit for the bearing. If necessary, it indicates the frequency to be used for this purpose and the number of times the transmission is to be repeated.

(3) After having changed, if necessary, to its new transmitting frequency, the calling station transmits two dashes of approximately ten seconds each, followed by its call sign. It repeats this signal as often as the radio direction-finding station requires.

(4) The radio direction-finding station determines the direction and, if possible, the sense of the bearing, and its classification (see 2.).

(5) If the radio direction-finding station is not satisfied with the operation, it will request the calling station to repeat the transmission described in (3).

(6) The radio direction-finding station then transmits the information to the calling station in the following order:

(a) the appropriate service abbreviation;

- (b) three digits indicating the true bearing in degrees from the radio direction-finding station;
- (c) class of bearing;
- (d) time of observation;
- (e) if the radio direction-finding station is mobile, its own position in latitude and longitude, preceded by the service abbreviation QTH.

As soon as the calling station has received the result of the observation, it repeats the message, if this is considered necessary to obtain confirmation. The radio direction-finding station then confirms that the repetition is correct or, if necessary, corrects it by repeating the message. When the radio direction-finding station is sure that the calling station has received the message correctly, it transmits the signal "end of work". The calling station repeats this signal to indicate that the operation is finished.

In the absence of information to the contrary, the calling station may assume that the sense of the bearing was determined. If the radio direction-finding station has not determined the sense, it indicates this in the information transmitted, or reports the bearing and its reciprocal.

2. CLASSIFICATION OF BEARINGS ON FREQUENCIES BELOW 3000 KHZ

To estimate the accuracy and determine the corresponding class of a bearing:

- (a) an operator should generally, and particularly in the maritime mobile radio direction-finding service, use the observation characteristics of bearings shown in the following Table;
- (b) the operators at a radio direction-finding station, when facilities and time permit, may take into account the probability of error in the bearing. A bearing is considered as belonging to a particular class if there is a probability of less than one in twenty that the bearing error would exceed the numerical values specified for that class in the Table. This probability should be determined from an analysis of the five components that make up the total variance of the bearing (instrumental, site, propagation, random-sampling and observation components).

TABLE

Class	Bearing Error (Degrees)	Observational Characteristics					
		Signal Strength	Bearing Indication	Fading	Interference	Bearing Swing (Degrees)	Duration of Observation
A	± 2	very good or good	definite (sharp null)	negligible	negligible	less than 3	adequate
B	± 5	fairly good	blurred	slight	slight	more than 3 less than 5	short
C	± 10	weak	severely blurred	severe	strong	more than 5 less than 10	very short
D	more than ± 10	scarcely perceptible	ill-defined	very severe	very strong	more than 10	inadequate

3. TO OBTAIN A POSITION DETERMINED BY TWO OR MORE RADIO DIRECTION-FINDING STATIONS ORGANISED AS A GROUP

(1) If the calling station wishes to be informed of its position by a group of radio direction-finding stations, it calls the control station as indicated in 1. (1) and requests its position by means of the appropriate service abbreviation.

(2) The control station replies to the call and, when the radio direction-finding stations are ready, requests, by means of the appropriate service abbreviation, the calling station to transmit. When the position has been determined, the control station transmits to the calling station:

- the appropriate service abbreviation;
- the position, in latitude and longitude or, if appropriate, in relation to a known geographical position;
- the class of position as defined in the following subparagraph;
- the time of observation.

(3) According to its estimate of the accuracy of the observation, the control station must classify the position in one of the four following classes:

Class A: positions which the operator may reasonably expect to be accurate to within 5 nautical miles;

Class B: positions which the operator may reasonably expect to be accurate to within 20 nautical miles;

Class C: positions which the operator may reasonably expect to be accurate to within 50 nautical miles;

Class D: positions which the operator may not expect to be accurate to within 50 nautical miles.

4. TO OBTAIN SIMULTANEOUS BEARINGS FROM TWO OR MORE RADIO DIRECTION-FINDING STATIONS ORGANISED AS A GROUP

On a request for bearings, the control station of a group of radio direction-finding stations proceeds as indicated in 3. above. It then transmits the bearing observed by each station of the group, each bearing being preceded by the call sign of the station which observed it.

Index

	SECTION
A, service indication to be used for service advice	62
Abbreviations, list of	App. 2
Abbreviations to indicate working frequencies	91
Acceptance of radiotelegrams	31
Accounts	70
Accounts, particulars to be supplied to coast stations	116
Acknowledgment of receipt of distress message	126, 178
Acknowledgment of receipt of radiotelegram	112, 164
Acknowledgment of receipt of radiotelegram,, procedure in doubtful case	113
Address of radiotelegram	31, 38, 40
Advice, service	62, 63
Advice, paid service	59, 60
Alarm signals	120, 172
"All ships call" (selective calling system)	172
"All stations" call	96
Alphabet, phonetic	App. 2
Ampliation	113, 166
Amplitude modulation	9
Apparatus, general provisions	10
Apparatus, screening of	10
Apparatus, unauthorised use for private correspondence	13
Apparatus, use of in United Kingdom harbours	15
Appeals under Wireless Telegraphy Act, 1949	25
Applications for reimbursement	72
Areas of high traffic density, radiotelephony	143
Arrival in port, ship stations	103, 158
Authority of Master	2, 118, 132, 170, 185
Authority to operate	25
Authority to operate, suspension of	25
Avoidance of interference	12
 Battery, maintenance of	30
Beacon service	190
Bearing, procedure for obtaining	App. 8
Booking of radiotelephone calls	76
Booking of radiotelephone calls, period of validity	77
Broadcast receivers, use on board ship	1
Broadcast transmissions, unauthorised	140
Broadcasting service, by mobile stations prohibited	11
Break signs	109

	SECTION
Call and reply, example of	98, 152
Call and reply, frequencies for, radiotelegraphy	89, 91
Call and reply, frequencies for, radiotelegraphy, supplementary .. .	89
Call and reply, frequencies for, radiotelephony	143, 145
Call, coast station receiving more than one	97, 149
Call, distress	122, 174
Call, distress, obligation to accept	5
Call, from unknown station, procedure	97, 150
Call, to "all stations"	96
Call to any British Warship	16
Call to include indication of working frequency	89, 94, 143, 149
Calling bands, radiotelegraphy, H/F	91
Calling frequency, radiotelephony, H/F	144
Calling, general rules for, radiotelegraphy	94
Calling, general rules for, radiotelephony	149
Calls, intervals between	94, 149
Call-signs	24
Call-signs, Alphabetical List of	23
Call-signs, to be sent when testing	14
Cancellation of radiotelegram	60
Cancellation of radiotelephone call	78
Carrier, emission between calls prohibited	149
Casualties and wrecks	21
Categories of ship stations for public correspondence	7, 27
Certificates of competence, loss of	26
Certificates of competence, operators'	25, 137, App. 4
Certificates of competence, production in port	3
Certificates of competence, service qualifications	27
Change from transmission to reception and vice versa	10, 86, 91
Changes of transmitting frequencies	10, 86, 91
Charges for ordinary telegraph transmission	68
Charges for radiotelegrams	65-68
Charges for radiotelegrams, prior notice of changes to be given	68
Charges for radiotelephone calls	79
Charges for Ship Letter Telegrams	47
Charges, refund of	71, 73
China, address of radiotelegrams for	38
Classes of certificates for operators	25, 137, App. 4
Classes of radiotelegrams not admitted	32
Classification of emissions	9
Classification of ships for safety purposes	27
Clock, daily check of	7
Clock, obligation to provide	7
Closure of coast and ship stations	7, 103, 157
Coast stations, closure of	7
Coast stations, control of working	93, 139, 148, 149
Coast stations, radiotelephony, announcement when engaged .. .	149
Coast stations, relaying of traffic	105

	SECTION
Coast stations, to supply ship stations with information on charges ..	68
Coast stations, traffic lists	99, 153
Coast stations, use of frequencies, radiotelegraphy	89, 91
Coast stations, watch in band 156-174 MHz	145
Collated radiotelegrams	50, 110
Collect (transferred charge) radiotelephone calls	74
Commencing signal	109, 163
Communications, control by coast stations	93, 139, 148
Communications, priority of	20, 162
Communications, secrecy of	4, 135
Communications, with H.M. Ships	16
Compound words, counting of	41
Control of distress traffic	128, 181
Control of working	93, 139, 148, 149
Correction of radiotelegram by sender	59
Correspondence, secrecy of	4, 135
Correspondence, superfluous, prohibited	13
Counting of words	39-42
Counting of words, examples	44
CP, call to several stations without request for reply	96
CQ, call, conditions of use	96
Credit cards	80
 Date and time, signalling of	31
Dangerous parts of apparatus to be screened or isolated	10
Dangers to navigation, reporting of	21
DDD, use of by vessel not itself in distress	129
Deceptive or false distress, safety or identification signals	6
Departure from port, ship stations	103, 158
Delivery of radiotelegrams by special means	51, 52
De-Luxe (Greetings) radiotelegrams	55
Designation of frequencies	8
Diary of Radio Service	29, App. 5
Difficult, procedure when radio communication becomes	113, 166
Direction-finding	189, App. 8
Disposal of radiotelegram forms	31
Distress call	122, 174
Distress call to have absolute priority	5
Distress call and message, authority of Master required	118, 170
Distress call and message, example of, by radiotelephony	177
Distress call and message, obligation to accept	5
Distress call and message, speed of transmission	118
Distress call and message, transmission procedure	125, 176
Distress frequency, radiotelegraphy and protection of	89, 119
Distress frequency, radiotelephony and protection of	143, 171
Distress message	123, 175
Distress message, acknowledgment of receipt	126, 178
Distress message, action following receipt of	127, 179

	SECTION	
Distress message, obligation to acknowledge receipt ..	127, 179	
Distress message, repetition of ..	125, 127, 179, 182	
Distress message, transmission by vessel not itself in distress ..	129, 182	
Distress, imposition of silence ..	128, 181	
Distress, procedure on abandoning ship ..	125	
Distress, procedure when distress traffic ended ..	128, 181	
Distress signal ..	121, 173	
Distress signal, avoidance of irregular radiation during tests ..	104	
Distress signal, false or deceptive ..	6	
Distress signal, misuse of ..	130, 183	
Distress traffic ..	124, 180	
Distress traffic, control of ..	128, 181	
Distress traffic, delegation of control ..	128, 181	
Distress traffic, procedure for working during ..	128, 181	
Distress traffic, to be followed by ship stations ..	128, 181	
Distress traffic, to be recorded in log ..	28, 29	
Division of ship radiotelegraphy bands 4-27 MHz ..	91	
Documents to be carried by ship stations ..	22, 138, App. 7	
Doubtful reception, procedure ..	113, 166	
Duplex radiotelephone frequencies, bands 4-23 MHz ..	144	
Duplicates of radiotelegrams ..	31	
Duplication of names of ships ..	38, 114, 136	
Duration of radiotelephone call ..	169	
Duration of transmission on 500 kHz, 2182 kHz and 156.8 MHz ..	89, 148	
Electrical and electronic apparatus, must not cause harmful interference ..		10
Emergency Position-indicating Radiobeacons (E.P.I.R.B.) ..	184	
Emergency position-indicating radiobeacon signal ..	172	
Emissions, classification of ..	9	
End of work, signal for ..	100, 154	
Endorsement of operators' certificates ..	27	
Energy radiated from receivers ..	10	
Examination for operators' certificates, syllabus for ..	App. 4	
Examples of counting of words ..	44	
Experiments ..	14	
Express delivery of radiotelegram ..	52	
Facsimile, frequencies for ..	91	
Failure to establish communication with United Kingdom coast station ..	101, 155	
False distress, safety or identification signals ..	6, 136	
Figures, counting of ..	42	
Figures, transmission by radiotelephony ..	163, App. 2	
Finish of correspondence ..	100, 154	
Fishing vessels, classification ..	7	
Fishing vessels, operator's requirements ..	27	
Fishing vessels, TRs ..	102, 156	

	SECTION
French equivalents	64
Frequency, change during transmission	10
Frequency, device for measuring	10
Frequency, international common intership and ship-shore	143
Frequency, (or phase) modulation	9
Frequency, radiotelegraph, distress	89, 119
Frequency, radiotelegraph, distress, protection of	89
Frequency, radiotelephone, call and reply	143
Frequency, radiotelephone, calling in bands 4-23 MHz	144
Frequency, radiotelephone, distress	171
Frequency, radiotelephone, distress, protection of	143
Frequency, to be used for traffic, agreement on	97, 151
Frequency, to be used only for purpose shown on licence	142
Frequencies, abbreviations for indicating working	91
Frequencies, designation of	8
Frequencies, for direction-finding	189
Frequencies, for Port Operations Service	145
Frequencies, introduction of S.S.B. techniques in radiotelephone services	141
Frequencies, of radiobeacon stations	190
Frequencies, radiotelegraphy, to be fitted	89, 91
Frequencies, radiotelegraphy, use in bands between 405-535 kHz	89
Frequencies, radiotelegraphy, use in bands between 1605-1625 kHz	90
Frequencies, radiotelegraphy, use in bands between 4000-27600 kHz	91
Frequencies, radiotelephony, to be fitted	143, 145
Frequencies, radiotelephony, use in bands between 1605-4000 kHz	143
Frequencies, radiotelephony, use in bands between 4000-23000 kHz	144
Frequencies, radiotelephony, use in bands between 156-174 MHz	145
General call to any British Warship	16
Government radiotelegrams, repetition of	110, 112
GP, to be called for	45, 53
GPR, to be called for	45, 53
Greenwich Mean Time, use of	7, 31
Greetings (De-Luxe) radiotelegrams	55
Groups of characters, counting of	40-42
Groups of characters, counting of, examples	44
Handing-in time, method of expressing	31
Harbours, use of radio apparatus in United Kingdom	15
Harmful interference, from electrical apparatus	10
Harmful interference, from receiver radiation	10
High traffic density areas, radiotelephony	143
H.M. Ships, communication with	16
Hours of watchkeeping, coast and ship stations for safety and public correspondence purposes	7, 89, 143, 145, 171
Hours of watchkeeping, ships of second and third categories	App. 3

	SECTION
Ice, reporting of	21
Identification of ships bearing the same name	38, 115, 136
Identification of stations	24, 136
Identification signals	24
Identification signals, false or deceptive	6
Identification, transmission without, prohibited	24, 136
Identification, when testing	14, 104, 159
Identity card or badge, production of	3
Indication in preamble of number of words	43
Information to be furnished by ship stations (TR)	102, 156
Infringement of the Radio Regulations, reporting of	17
Inspection of operators' certificates	3
Inspection of stations	3
Instructions, sender's	31, 33
Interception of correspondence, secrecy of	4, 135
Interference, avoidance of	12
Interference, from electrical and electronic apparatus	10
Interference, when testing	14, 104, 159
International Morse Code	App. 1
International Morse Code, obligation to use	92
International Telecommunication Union, documents published by	23
Intership, international common radiotelephone frequency	143
Invitation to transmit signal	110, 151
Jour, delivery during the day	110, 151
"K", use of	110
Language, offensive, prohibited	140
Language, plain	31, 36
Language, secret	31, 37
Licence, obligation to obtain	1, 134
Licence, production on request	1
Licence, reception of broadcast and television programmes on board	1
Licence, specimen copy	App. 6
Lifeboats, testing of portable transmitters	104
Listening through	86
Logs, form of	App. 5
Logs of ships not required to be fitted with radio apparatus	29
Logs of ships required to be fitted with radio apparatus	28
Long distance ship-shore communications	117
Long distance ship-shore communications, deferred acknowledgment	113
Long radiotelegrams, transmission of	111
Loss of certificate of competence	26
Loss of person overboard	120, 172
Master, authority of	2, 118, 132, 170, 185
MAYDAY	173
MAYDAY RELAY	182

SECTION

Medical advice and assistance, procedure	193
Merchant Shipping (Radio) Rules, 1965, and Merchant Shipping (Radio) (Fishing Vessels) Rules, 1974, classification of ships	27
Merchant Shipping (Radio) Rules, 1965, and Merchant Shipping (Radio) (Fishing Vessels) Rules, 1974, watchkeeping under	7
Merchant Shipping (Radio) Rules, 1965, retest of operators	27, App. 4
Messages, distress, obligation to accept	5
Meteorological bulletins, warnings and requests	191
Method of calling, radiotelegraphy	94
Method of calling, radiotelephony	149
Minimum charge for radiotelegrams	65
Minimum charge for radiotelegrams, press	67
Minimum power to be used	12
Miscellaneous abbreviations and signals	App. 2
Misuse of distress signal	130, 183
Modulation, amplitude, frequency (or phase) and pulse	9
Morse Code, international	App. 1
Morse Code, use obligatory	92
MP, service indication, radiotelegram to be delivered to addressee in person	33, 45, 51
 Narrow-band direct-printing telegraph and data transmission systems	91
Navigation, dangers to, reporting of	21
Navigational warnings, etc.	192
Navigational warning signal	172
Non-delivery of radiotelegrams	61
Normal and restricted working during distress	128, 181
"Nuit", delivery at night	45
Number of words, instructions for signalling	43
Numbering of radiotelegrams	107, 162
 OBS, service indication for meteorological radiotelegram	45
Obligation to accept, distress calls and messages	5
Obligation to acknowledge receipt of distress message	127, 179
Ocean Letters	56
Oceanographic data transmission	91
Offences, penalties for	25, 140
Offensive language, prohibition of use	140
Office of destination, counting of words in	40
"On Board" (internal) communications	161
Operator's certificates of competence	25, 137, App. 4
Operator's, retests under Merchant Shipping (Radio) Rules and Merchant Shipping (Radio) (Fishing Vessels) Rules	27, App. 4
Operators', service qualifications	27
Operation of radio equipment on United Kingdom ships	25
Order of priority	20, 162
Order of work	106, 162
Overboard, loss of person..	120, 172

	SECTION
Paid service advices	59, 60
PAN PAN, urgency signal	185
PAV, service indication, delivery by air-mail	45, 52, 57
PC, service indication, notification of delivery	45
PR, service indication, delivery by registered letter	45, 52
Penalties for offences	25, 140
Period of retention of radiotelegrams at coast stations	55
Person, loss of, overboard	120, 172
Personal radiotelephone calls	74
Phase (Frequency) modulation	9
Phonetic Alphabet	App. 2
Pilot Service	145
Plain language	31, 36
Port, arrival in and departure from	103, 158
Port Operations and Ship Movement Services	160
Port Operations and Ship Movement Services, frequencies for	145
Ports, use of radio apparatus in United Kingdom	15
Post, delivery of radiotelegrams by	52
Post Office (Protection) Act, 1884, Copy of Section 11 to be exhibited	4
“Poste” indication of radiotelegram to be delivered by post	45, 52, 57
Poste Radios	57
Poste Restante	38
Power, minimum to be used	12
Power, to be capable of reduction	89
Preamble of radiotelegram	31, 109
Preamble of radiotelegram, for inland transmission	115, 167
Preamble of radiotelegram, indication of number of words in	43
Prefixes for radiotelegrams	34
Prepaid replies	49
Preparatory signalling to transmission of traffic	108, 163
Press radiotelegrams	48
Press radiotelegrams, charges for	67
Presse, service indication	45
Private correspondence, unauthorised use of apparatus for	13
Priority, distress calls to have absolute	5
Priority of communications	20, 162
Priority of radiotelephone calls	75
Priority, order of work	106, 162
Publication of service documents	23
Public correspondence, categories of ship stations	7
Public correspondence, watchkeeping for	89, 143
Pulse modulation	9
Punctuation, counting of signs of	40, 41
“Q” Code	App. 2
Qualifications, service, of operators	27
Question papers for HO certificates, specimen	App. 4

	SECTION
QRT Distress, use of	128
QRT SOS, use of	128
QUM, QUZ, use of	128
“R”, use of	112
Radiobeacon stations	190
Radiocommunication log	28, 29, App. 5
Radiocommunications, secrecy of	4, 135
Radiodetermination	188
Radiomaritime letter (S.L.T.)	47
Radiotelegrams, acceptance of	31
Radiotelegrams, acknowledgment of receipt	112, 164
Radiotelegrams, address of	31, 38, 40
Radiotelegrams, ampliation	113, 166
Radiotelegrams, cancellation of	60
Radiotelegrams, charges for	65-68
Radiotelegrams, classes not admitted	32
Radiotelegrams, correction by sender	59
Radiotelegrams, counting of words	39-42
Radiotelegrams, delivery by special means	52
Radiotelegrams, De-Luxe (Greetings)	55
Radiotelegrams, disposal of forms	31
Radiotelegrams, doubtful reception of	113, 166
Radiotelegrams, duplicate of	31
Radiotelegrams, examples of counting of words	44
Radiotelegrams, examples of transmission	110, 165
Radiotelegrams, form of transmission	110, 163
Radiotelegrams, for H.M. Ships	16
Radiotelegrams, for ships in port, treatment of	55
Radiotelegrams, government priority	34
Radiotelegrams, government, repetition of	110, 112
Radiotelegrams, handing-in time	31
Radiotelegrams, indication of number to transmit	95
Radiotelegrams, in plain language	36
Radiotelegrams, in secret language	37
Radiotelegrams, minimum charges for	65, 67
Radiotelegrams, numbering of	107, 162
Radiotelegrams, number of words in preamble	43
Radiotelegrams, period of retention at coast stations	55
Radiotelegrams, preamble of	31, 109, 163
Radiotelegrams, prefixes for	34
Radiotelegrams, prepaid replies	49
Radiotelegrams, press	48
Radiotelegrams, priority of work	106, 162
Radiotelegrams, receipts for charges	69
Radiotelegrams, receipt to be acknowledged, PC	45
Radiotelegrams, redirection of	101

	SECTION
Radiotelegrams, reimbursement of charges	71-73
Radiotelegrams, relaying of	105, 162
Radiotelegrams, repetition of, at request of addressee	59
Radiotelegrams, routing of	35
Radiotelegrams, sender's name and address	31
Radiotelegrams, service indications	31, 45
Radiotelegrams, service instructions	31, 33
Radiotelegrams, signature	31
Radiotelegrams, text of	31
Radiotelegrams, to be called for	45, 53
Radiotelegrams, to be collated	45, 50
Radiotelegrams, to be delivered to the addressee in person	33, 45, 51
Radiotelegrams, to be held at coast station	54
Radiotelegrams, to be sent by radiotelegraphy if possible	105
Radiotelegrams, transmission of long	111
Radiotelegrams, transmission in series	95, 97
Radiotelegrams, transmission to coast stations	105, 162
Radiotelegrams, undelivered	61
Radiotelegrams, urgent	46
Radiotelegraphy, control of working	93
Radiotelephone calls	74
Radiotelephone calls, booking of	76
Radiotelephone calls, cancellation of	78
Radiotelephone calls, charges for	79
Radiotelephone calls, credit cards	80
Radiotelephone calls, duration of	169
Radiotelephone calls, establishment of	168, 169
Radiotelephone calls, period of validity of bookings	77
Radiotelephone calls, priority of	75
Radiotelephone calls, services available	74
Radiotelephone calls, supplementary charges	79
Radiotelephone installations, control by operator	25, 137
Radiotelephone installations, use by persons not holding authority	25, 137
Radiotelephony, control of working	139, 148
Radiotelephony, general use of frequencies	142-145
Radiotelex calls	80
Rates, details of composition	65-68
Rates, notice to be given of changes	68
Receipts for radiotelegram charges	69
Receivers, energy radiated from	10
Reception, change to transmission	10
Reception, doubtful, treatment of	113, 166
Redirection of radiotelegrams	101
Reduction of power	89
Registered address	38
Registered letter, radiotelegrams to be posted as	52
Regulations, Radio, infringements, reporting of	17
Reimbursement of charges	71-73

	SECTION
Relaying of traffic by coast stations	105, 162
Repetition of distress message	125, 127, 179, 182
Repetition of figures, etc.	110
Repetition of government radiotelegrams	110, 112
Repetition of radiotelegram at request of addressee	59
Reply and call, radiotelegraphy, frequencies for	89, 91
Reply and call, radiotelegraphy, in regions of heavy traffic	89
Reply and call, radiotelegraphy, supplementary frequency	89
Reply paid radiotelegrams	49
Reply to calls, radiotelegraphy, example of	98
Reply to calls, radiotelegraphy, general rules for	97
Reply to calls, radiotelephony, example of	152
Reply to calls, radiotelephony, general rules for	150
Reporting of infringements of the Regulations	17
Restricted radiotelephone certificate	25
Restricted working during distress	128, 181
Retention of radiotelegrams at coast stations	55
Retests under the Merchant Shipping (Radio) Rules and Merchant Shipping (Radio) (Fishing Vessels) Rules	27, App. 4
Retransmission of radiotelegrams	58
RP, reply paid, service indication	45, 49
 Safety purposes, classification of ships for	 27
Safety signals and messages, procedure	133, 187
Safety signals and messages, speed of transmission	118
Safety watchkeeping by ships	7, 89, 143, 145, 171
Screening of dangerous parts of apparatus	10
Search and rescue, use of 5680 kHz	144
Secrecy	4, 135
Secret language	31, 37
Second Category ships, hours of watch	App. 3
SÉCURITÉ, safety signal	187
SEELONCE MAYDAY, use of	181
Selective Calling, frequencies to be used	85
Selective Calling, general use of	81
Selective Calling, method of calling	82
Selective Calling, repetition of calls	83
Selective Calling, reply to calls and all ships call	84
Sender of radiotelegram, name and address to be supplied	31
Sender's instructions	31, 33
Series, transmission in	95, 97
Service advice, French equivalents	64
Service advices	62, 63
Service documents published by the I.T.U.	23
Service instructions	31
Service qualifications for operators	27
Ship Letter Telegrams	47

	SECTION
Ship Licence, specimen	App. 6
Ship stations, arrival in port	103, 158
Ship stations, categories of	7
Ship stations, closure of service	7, 103, 157
Ship stations, departure from port	103, 158
Ship stations, documents to be carried	22, App. 7
Ship stations, hours of watch	89, 143, App. 3
Ship stations, inspection of	3
Ship stations, radio logs	28, 29
Ship stations, survey of	3
Ship stations, to avoid interfering with coast station	93, 139
Ship stations, to establish communication with coast station	94, 149
Ship stations, to follow distress traffic	128
Ship stations, to supply accounting particulars	116
Ship stations, under authority of Master	2
Ship stations, use of A1 emission in H.F. telegraph bands	91
Ship stations, watch in band 156-174 MHz	145
Ship stations, watchkeeping for safety purposes	7
Ship stations, with no fixed hours, call from coast stations	7
Ships, classification of, for safety purposes	27
Ships, duplication of names	38, 114, 136
Ships, Second Category, watchkeeping hours of	App. 3
Ship-shore communications, international common frequency	143
Signal for end of work	100, 154
Signalling, duration of on 500 kHz, 2182 kHz and 156.8 MHz	89, 148
Signals doubtful, procedure when	113, 166
Signature of radiotelegram	31
Silence periods	18, 89, 143, 171
Small-craft radiotelegraphy service	90
SOS, distress signal	121
Specimen examination question papers	App. 4
Specimen Licence	App. 6
Specimen service advices	63
Speed of transmission in distress, urgency and safety signalling	118
S.S.B., frequency designation by carrier frequency	142
S.S.B., introduction to R/T services	141
ST, paid service advice .. .. .. .. ..	.. 59, 60
Stations, identification of	24, 136
Superfluous signals and correspondence	13
Supplementary calling and reply frequency	89
Supplementary charges for radiotelephone calls	79
Supplementary instructions	45
Survey of ships	3
Suspension of authority to operate	25
Syllabus of operator certificate examinations	App. 4
TC, service indication, radiotelegram to be repeated back .. .. .. .. ..	.. 45, 50
“Telegraph Restante” address .. .. .. .. ..	.. 38

	SECTION
Telephone credit cards	80
Telephonic address	38, 40, 52
Telex address	38, 40, 52
Terminating signal	109, 163
Testing of apparatus .. .. .. .. .. ..	.. 14
Test signals, transmission of	104, 159
Text of radiotelegram	31
TF, service indication for delivery by telephone .. .. .. .. .. ..	.. 45, 52
Time signals and checking of clock	19
Time of handing-in of radiotelegram	31
Tolerance, maintenance of .. .. .. .. .. ..	.. 10
TR	102, 156
Traffic, distress	124, 180
Traffic lists	99, 153
Traffic, preparatory signalling	108, 163
Transferred Charge (Collect) radiotelephone call	74
Transmission, change to reception .. .. .. .. .. ..	.. 10
Transmission, distress call and message, by vessel not itself in distress	129, 182
Transmission, distress call and message, procedure	125, 176
Transmission of figures, radiotelephony	163
Transmission of radiotelegram	109
Transmission of radiotelegram, examples	109, 110, 163, 165
Transmission of radiotelegram in series .. .. .. .. .. ..	.. 95, 97
Transmission of radiotelegram to coast stations	105, 162
Transmission, unauthorised, superfluous and unnecessary, forbidden	13, 140
Transmissions without identification, prohibited	24, 136
TTT, to be used as safety signal .. .. .. .. .. ..	.. 133
Unauthorised identifications prohibited	136
Unauthorised transmissions forbidden .. .. .. .. .. ..	.. 13, 140
Undelivered radiotelegrams .. .. .. .. .. ..	.. 61
Unknown call, procedure .. .. .. .. .. ..	.. 97, 150
Unnecessary transmissions forbidden .. .. .. .. .. ..	.. 13, 140
Urgency signals and messages, authority of Master required	132, 170
Urgency signals and messages, procedure .. .. .. .. .. ..	.. 132, 185, 186
Urgency signals and messages, speed of transmission .. .. .. .. .. ..	.. .. 118
Urgent radiotelegrams .. .. .. .. .. ..	.. .. 46
Use of radio apparatus in United Kingdom harbours .. .. .. .. .. ..	.. .. 15
"V", use for tests .. .. .. .. .. ..	.. .. 104
Wait, procedure when ship is required to .. .. .. .. .. ..	.. .. 97, 150
Warships, communication with, and radiotelegrams to .. .. .. .. .. ..	.. .. 16
Watchkeeping, hours of, coast and ship stations .. .. .. .. .. ..	.. 7, 89, 143, 145, 171
Watchkeeping on 500 kHz .. .. .. .. .. ..	.. .. .. 89
Watchkeeping on 2182 kHz .. .. .. .. .. ..	.. .. .. 143, 171
Watchkeeping on 156.8 MHz .. .. .. .. .. ..	.. .. .. .. 145

	SECTION
Weather bulletins, etc.	191
Wideband systems, facsimile and special transmission systems, frequencies for	91
Wireless Telegraphy Act, 1949 to 1967	1
Wireless Telegraphy Act, 1949, appeals	25
Wireless Telegraphy Act, 1949, offences and penalties	25, 140
Words, counting of	40, 42
Words, counting of, examples	44
Words, number of, instructions for signalling	43
Working, control of	93, 139, 148, 149
Working frequencies, radiotelegraphy	89, 91
Working frequencies, radiotelegraphy, abbreviations for	91
Working frequencies, radiotelephony	143, 144, 145
Working frequencies, radiotelephony, agreement on	143, 144, 149
Working frequencies, radiotelephony, common international intership and ship-shore	143
Working frequency, to be used, indication in call	89, 94
Wrecks and casualties	21
XP, service indicator, express delivery	45, 52
XXX, to be used as urgency signal	132

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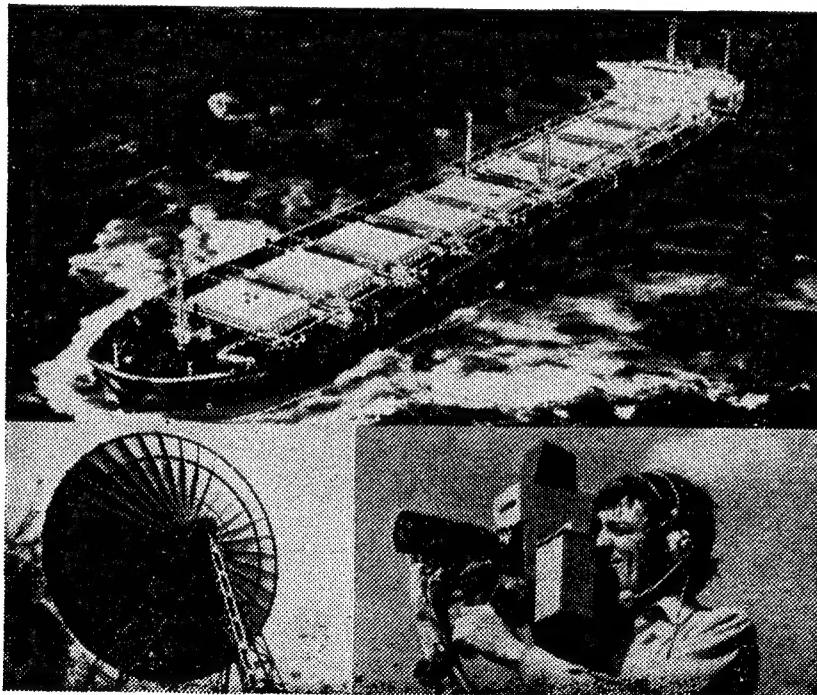
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